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Study of Automobile Exhaust Emissions in Consumer-Owned Vehicles, Great Plains Surveillance Program, 1968-69 Model Vehicles

Olson Labs, Inc, Dearborn, Mich

Prepared for

Environmental Protection Agency, Ann Arbor, Mich Office of Air Programs

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1968-1969 Model Vehicles

Prepared For

Environmental Protection Agency
Office of Air Programs
2565 Plymouth Road
Ann Arbor, Michigan 48105

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ABSTRACT

Exhaust emission tests were performed on a total of 873 typical consumer-owned 1968-1969 model light-duty vehicles in Kansas City and Houston to ascertain the effectiveness of Federal exhaust emission standards. The vehicles were representative of at least 90% of the vehicles sold in the U.S. by AMC, Chrysler, Ford, General Motors, and Volkswagen. Approximately the same number of vehicles were tested for each of 27 classes, each class representing a combination of manufacturer, engine size and transmission type.

Vehicles were tested using the Federal 7-mode, 7-cycle cold-start procedure. The intention was to test each vehicle three times at about 4000 mile intervals. After the first round of testing (Phase I) on 873 vehicles, 656 of these were retrieved and tested in Phase II, and 500 of the latter were tested in Phase III. The average mileages in the three phases were 21960, 30577, and 36539, with the Kansas City averages about 4000 miles lower than in Houston.

The average emission levels for all vehicles in Phase I were 309 ppm HC and 1.91% CO (excluding Volkswagens, which had average levels of 399 ppm HC and 1.89% CO). Federal standards for certifying prototype models of these vehicles were 275 ppm HC and 1.50% CO (except Volkswagens: 410 ppm HC and 2.30% CO). Excluding Volkswagens, only 29% of the vehicles tested in Phase I had emission levels below the certification standards for both HC and CO. However, 53% met the HC standard and 40% met the CO standard.

The average emission levels for all vehicles in all three phases combined were slightly higher than in Phase I: 326 ppm vs 316 ppm for HC; and 1.99% vs 1.97% for CO. Data on oxides of nitrogen (NO_x) were also obtained although there were no standards for NO_x.

Statistical analysis by an unbalanced three-way analysis of variance showed that phase, city, and vehicle class effects were significant for HC, CO and NO_x. The phase effects and a part of the city effects are confounded with vehicle mileage effects. The city effects, adjusted for mileage effects, represent an increase in HC and CO emission levels in Houston compared with Kansas City. There are large differences between emission levels for the various vehicle classes and an approximate ranking is presented.

A regression study showed that there is a small but statistically significant effect of mileage on emission level. For all vehicle data taken together the change per 1000 miles is an increase of about 0.7% for HC and CO and a slightly smaller decrease for NO_x. Most of the trends for the individual classes are in the same direction as the overall data.

A study of the idle test as a predictor of the full seven-mode test showed that pass and fail decisions based on hot idle levels of 205 ppm HC and 2.85% CO agreed with 83% of the decisions reached on the basis of the full seven-mode test using policy levels of 275 ppm and 1.50% CO. Volkswagens were excluded.

In Phase I a Hot Start test was made with corrected idle adjustments after the Cold Start test if the adjustments were incorrect. In Phases II and III the Hot Start was made with a new air filter if the vehicle's filter was unusually dirty. These minor changes had little effect on hot cycle emissions, except for a small decrease in CO level.

CONTENTS

Section			Page
1	INTRODUCTION		1-1
	1.1	Purpose	1-1
	1.2	Scope of Work	1-2
2	VEHICLE SELECTION		2-1
	2.1	Type of Vehicles	2-1
	2.2	Source of Vehicles	2-2
3	VEHICLE PROCUREMENT.		3-1
	3.1	Strategies Used	3-1
	3.1.1	Introduction.	3-1
	3.1.2	Mass Media.	3-1
	3.1.3	Miscellaneous Contacts.	3-1
	3.1.4	Mass Mailings	3-2
	3.1.5	Other Sources	3-3
	3.2	Contractor, Vehicle-Owner Interface	3-3
	3.3	Difficulties Encountered.	3-4
4	INSTRUMENTATION AND EQUIPMENT.		4-1
	4.1	Description	4-1
	4.2	System Qualification.	4-2
	4.2.1	Qualification of Original Analysis System	4-3
	4.2.2	Qualification of Calibration Gases.	4-6
	4.2.3	Periodic System Cross-Check (Original System, Phase I).	4-6
	4.2.4	Requalification of Original System.	4-9
	4.2.5	Qualification of Houston Analytical System.	4-10
	4.2.6	Periodic System Cross-Checks (Updated Systems)	4-13
5	TESTING AND CALIBRATION PROCEDURES		5-1
	5.1	Emission Test Procedures.	5-1
	5.1.1	Initial Vehicle Inspection.	5-1
	5.1.2	Federal 7-Mode, 7-Cycle Cold Start Exhaust Emission Test	5-1
	5.1.3	Additional (Hot Start) Emission Tests	5-4
	5.1.4	Data Reduction.	5-6
	5.1.5	Quality Control	5-7

CONTENTS

(Continued)

Section			Page
	5.2	Calibration and Analytical System Check Out Procedures	
	5.2.1	Leak Checks.	5-9
	5.2.2	CO2 Interference Checks.	5-9
	5.2.3	Tailpipe Purge (Hang-Up) Check	5-10
	5.2.4	Data Reduction System Check.	5-10
	5.2.5	Flow Rates and Bypass Rates.	5-11
	5.2.6	Analyzer Adjustment Checks	5-11
	5.2.7	Analyzer Calibration Curve Checks.	5-12
	5.2.8	System Time Delay Checks	5-12
	5.2.9	Miscellaneous Analytical System Checkout	5-13
6	RESULTS		
	6.1	Emission Control Performance of In-Use 1968-1969 Model Vehicles	6-1
	6.1.1	Scope of Analysis	
	6.1.2	Mean Emission Levels	6-1
	6.1.2.1	Phase I Tests	6-3
	6.1.2.2	All Tests	6-3
	6.1.3	Comparison of Measured Emissions with 1968-1969 Model Certification Standards	6-4
	6.2	Analysis of Variance	6-7
	6.2.1	Introduction	6-9
	6.2.2	Unbalanced Analysis of Variance	6-9
	6.2.3	Car-to-Car and Test-to-Test Variability	6-10
	6.2.4	ANVAR Results	6-12
	6.2.5	Interpretation	6-12
	6.2.6	Differences Between Vehicle Classes	6-19
	6.3	Mileage Accumulation Analysis	6.26
	6.4	Effect of Mileage on Emission Level	6-38
	6.4.1	Unweighted Mileage Regressions	6-41
	6.4.1.1	General Conclusions	6-41
	6.4.1.2	Linear Least Squares Analysis	6-41
	6.4.1.3	Mileage Effects for Individual Classes	6-42
	6.4.2	Weighted Mileage Regressions	6-52
	6.5	Effects of Minor Tune-Up Practices on Emissions	6-54
	6.5.1	Foreward	6-66
	6.5.2	Summary	6-66
	6.5.3	Discussion of Results	6-66
	6.6	Maintenance Practice Information	6-67
	6.7	Idle Tests as Predictor of Federal Seven-Mode Test by Chew Technique	6-70
			6-72

SECTION 1

INTRODUCTION

1.1 PURPOSE

The contracted program was designed to gather exhaust emission data on 1968 and 1969 used motor vehicles to determine the effectiveness of the Federal exhaust emission standards and to determine the effect of increasing mileage by measuring emissions from vehicles driven by the motoring public.

Since motor vehicle exhaust emissions might vary in different parts of the country due to such factors as climate, topography or urban development, there was a need to determine what the emissions levels of in-use vehicles were in all areas of the country. The contiguous land area of the United States had been divided into eight atmospheric areas (Federal Register, Volume 33, No. 10, January 16, 1968). The specific purpose of this program was to obtain exhaust emission data from the Great Plains area.

Two major cities in the area, Kansas City and Houston, were selected as testing centers for the program.

1.2 SCOPE OF WORK

The test program was conducted on a pre-selected group of 1968-1969 in-use vehicles. The fleet was designed to give equal representation of each of twenty-seven engine displacement models selected from American Motors, Chrysler, Ford, General Motors and Volkswagen (see Table 2-1). At the start, the fleet had a total of 873 vehicles. These vehicles constituted a sample of sufficient size to gather statistical data representative of approximately ninety percent of the passenger motor vehicles sold in the United States. Vehicles were selected with the intention of testing them three times at intervals of 4,000 miles. Following the first round of testing, 656 of the vehicles were retrieved and tested. Following the second round, 500 were retrieved and tested for the third time. Original plans were to conduct three tests on each of 702 vehicles. The test fleet was composed entirely of privately owned vehicles representative of normal service.

The vehicles were tested for unburned hydrocarbons (HC), carbon monoxide (CO), carbon dioxide (CO_2), and oxides of nitrogen (NO_x) exhaust emissions by the seven-mode cold-start test procedure as stipulated in the Federal Register, Volume 31, No. 61, Part II, 85.70 to 85.83 inclusive.

Measurements of idle timing, RPM, dwell and CO were made after each cold-start emission test. Subsequent hot-start tests were conducted on 315 vehicles after correcting idle adjustments or replacing dirty air filters. The purpose of this retesting was to observe the effects of minor tune-up measures on exhaust emissions. The incorrect idle adjustments and dirty air filters were restored to as-found condition or replaced immediately following the hot-start tests.

Information supplied by vehicle owners on maintenance practices was recorded and analyzed to show the types and relative frequencies of maintenance work performed on vehicles in the two cities.

Idle emission data were correlated with seven-mode composite emission data by the Chew Analysis Techniques[1] to evaluate the results of an idle test as predictors of the results of the seven-mode test.

The contract was awarded June 30, 1969. Actual testing was conducted over a 24-month period from October 1969 to October 1971.

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(1) Marian F. Chew, Auto Smog Inspection at Idle Only, SAE Paper 690505, May 1969.

SECTION 2

VEHICLE SELECTION

2.1 TYPE OF VEHICLES

The makes, models, and specifications of the 27 vehicle classes preselected by EPA for the test program are listed in Table 2-1. The table reflects two changes in contract requirements. Class F-32, 1970 Ford Maverick with 200 CID engine, was intended to be 1969 Ford with 250 CID engine. Class G52, 1968-1969 Chevrolet with 250 CID engine and automatic transmission was intended to be the manual transmission version. The exhaust emission control system for the automatic transmission version was engine modification, while that for the manual transmission version was air injection reactor. The changes were made by the Project Officer to facilitate vehicle procurement, because scarcity of the originally specified models in Kansas City was delaying completion of Phase I.

A certain transmission type was specified sometimes to avoid mixing engine modification systems with air injection systems in the same vehicle class. Otherwise transmission types could be mixed. All vehicles in a class had the same carburetion and compression ratio. If a 1968 engine differed significantly from a 1969 engine of the same

displacement, engines of one model year only were used in the fleet. The only displacement class with air injection reactors was G76, Cadillac. One class, V82, was composed of Volkswagen Square-backs and Fast-backs equipped with 97 CID engines and fuel injection.

2.2 SOURCE OF VEHICLES

The fleet was composed entirely of owner-driven vehicles because such vehicles were assumed to be most representative of the vehicle population with respect to the care with which they are driven, the service they receive, the type and rate of mileage accumulation, and the length of time they are in service. The methods used to procure the vehicles are described in Section 3.

TABLE 2-1

CLASS SPECIFICATIONS AND SALES WEIGHTING FACTORS
FOR 1968 AND 1969 MODEL CARS IN PROGRAM

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL	Weighting (%)
1	A01	American Motors	232	A & M	6	1	1.58
2	C11	Dodge, Plym	225	A & M	6	1	3.10
3	C12	Dodge, Plym	318	A & M	8	2	9.03
4	C13	Chry, Plym	383	A Only	8	2	5.24
5	C14	Dodge, Chry, Plym	440	A Only	8	4	1.31
6	F31	Ford	200	A & M	6	1	1.98
7	F32	Ford (1970 Maverick)	200	A & M	6	1	1.98
8	F33	Ford, Merc	302	A & M	8	2	5.08
9	F34	Ford, Merc 1969 only	351	A & M	8	2	6.60
10	F35	Ford, Merc	390	A Only	8	2	2.69
11	F36	Ford, Merc	429	A Only	8	4	2.12
12	G51	Chev	230	A Only	6	1	0.65
13	G52	Chev	250	A Only	6	1	2.68
14	G53	Chev	307	A Only	8	2	4.07
15	G54	Chev 1968 Only	327	A Only	8	4	5.65
16	G55	Chev	350	A Only	8	4	8.06
17	G56	Chev	396	A Only	8	4	1.66
18	G61	Pont	350	A Only	8	2	3.59
19	G62	Pont	400	A Only	8	2	4.73
20	G63	Pont	428	A Only	8	4	1.51
21	G66	Olds	350	A Only	8	2	4.11
22	G67	Olds	455	A Only	8	4	3.87
23	G71	Buick	350	A Only	8	4	4.75
24	G72	Buick	430	A Only	8	4	3.71
25	G76	Cadillac	472	A Only	8	4	2.83
26	V81	Volkswagen	91	A & M	4	1	5.60
27	V82	Volkswagen	97	A & M	4	FI *	1.86

* Fuel Injection

SECTION 3

VEHICLE PROCUREMENT

3.1 STRATEGIES USED

3.1.1 Introduction

Numerous strategies were used to procure test vehicles. The central theme of the procurement strategies was that most people would be eager to participate in an air pollution control-oriented program, such as the Great Plains Surveillance Program. While certain difficulties were encountered, particularly with regards to locating certain models of vehicles not commonly found in the test cities, the basic assumption was essentially correct. In the following paragraphs, the results of the various strategies are discussed.

3.1.2 Mass Media

In general, favorable publicity in the form of newspaper articles or TV reports concerning the program was the most effective way of attracting volunteers. "Plugs" by popular reporters in columns in the newspapers as well as mention in certain of the public service features were particularly

valuable in attracting volunteers. During the course of Phase I of the program, the testing laboratories in Houston and Kansas City were visited numerous times by newspaper and televesion newsmen, and favorable publicity for the program was realized.

Also in conjunction with the mass media, newspaper and radio advertisements were purchased, and the results were at least satisfactory. In general, the support received by the mass media was better in Houston than in Kansas City, probably because of a higher level of awareness of the air pollution problem in Houston.

3.1.3 Miscellaneous Contacts

Numerous large companies and organizations were contacted and their support of the program was requested. In Kansas City, the Norcross Greeting Card Company was an example of certain organizations that were especially helpful. More than 40 cars were obtained through advertisements in the weekly company paper as well as bulletins posted promptly about the offices and plant. Other companies were also helpful to varying degrees. In Houston, Texaco, Inc. was one of the few registered owners of Chevy Novas of the class required for testing, and upon contacting Texaco, the last three cars required for the program were provided. Ecology groups were contacted, as were the automobile

associations and the TB and health associations. Generally speaking, these organizations were quite cooperative, and several vehicles in each city were obtained as a result of their participation. The support of organizations such as Chambers of Commerce, social clubs, and churches was at best of marginal value.

3.1.4 Mass Mailings

Mass Mailings to candidate vehicle owners were also used to a limited extent towards the end of Phase I in each of the cities to complement the entire test fleet. The response to the mass mailings was generally quite low, however, the mass mailings were valuable in obtaining certain hard to locate vehicles.

3.1.5 Other Sources

Numerous other sources of test vehicles were also explored and utilized to varying degrees. An important source of test vehicles was word-of-month contact from persons whose cars had been tested earlier. Brochures were placed on the windshields of acceptable candidate vehicles in parking lots with the approval of the management, and some vehicles were derived from that source. In several cases, members of the project team approached the drivers of urgently needed vehicles and pleaded for their assistance, again with varying results.

3.2 CONTRACTOR, VEHICLE-OWNER INTERFACE

Normally, a vehicle owner who became interested in participating as a result of one or more of the above strategies, contacted the test center by telephone or personal visit. The test center would answer questions about the program, and obtain necessary information on the owner's car, his name, telephone number and address. In case the candidate had returned a post card received in a mass mailing campaign, he was contacted by telephone. If the car make, model, mileage, etc. were correct for the program, and the owner was willing to participate, the car was scheduled for testing at a mutually convenient time.

When the day for testing arrived, the participant's car was usually brought in by him, but would be picked up by test center personnel if necessary. The participant was asked to sign an agreement protecting him, his vehicle and his insurance company from any liability arising from the program (Fig. 3-1). He was provided with a late model, fully insured loan-car to replace his vehicle.

When the participant's car was returned, he was given a cash payment of $5.00 and a token gift. He was asked to continue in the program, and was offered the choice of a tune-up in lieu of the cash payment after the third and final test. The participant was also asked to keep a

record of maintenance or service performed on the car. It was explained that he would be contacted again within 3 to 5 months for the next exhaust emission inspection.

3.3 DIFFICULTIES ENCOUNTERED

Two main difficulties were encountered in the procurement effort, (1) attrition of the test fleet during the program, and (2) obtaining certain make-engine-transmission combinations that were rarely bought and used in the area.

Vehicles that were particularly scarce in Kansas City were 1969 Fords with 250 CID engines, and 1969 Chevrolets with 250 CID engines and manual transmissions. In order to facilitate vehicle procurement the Project Officer allowed replacement of the 1969 Fords by 1970 Mavericks with 200 CID engines, and substitution of Chevrolets with automatic transmissions for the manual transmission version. Except for a few weeks delay caused by this availability problem, procurement of vehicles for the first Phase of testing proceeded essentially according to plan.

In the second and third phases, attrition proved to be much more severe than anticipated. Both OLI and EPA recognized at the outset that it is much more difficult to make vehicles available for a series of tests than for a single test, especially when the duration of the program is more than a year. Provision had to be made for a reduction in

the fleet due to such things as transfers, sales, wrecks, void tests, and loss of interest on the part of some participants. OLI's contract proposal provided for an overall attrition of about 11 percent based on the premise set forth in RFP No. CPA 22-69-Neg. 39 that about half the fleet would be composed of vehicles other than privately owned and operated vehicles. The use of company owned vehicles provides more assurance of participant cooperation and vehicle availability.

The contract, however, required that at least 90 percent of the vehicles be privately owned. The allowance for overall attrition in the contract was increased to 19 percent in recognition of the added difficulty involved. The Project Officer preferred that no vehicles be obtained from commercial fleets; so none were. Unfortunately neither OLI or the sponsor had experienced the attrition rates to be expected in a long series of tests on a fleet composed entirely of privately owned vehicles. The contract allowed for an attrition loss of 6 percent between Phase I and Phase II. Actually 25 percent of the fleet was lost between Phase I and Phase II, and 24 percent of the remainder was lost between Phase II and Phase III, resulting in an overall attrition of 43 percent.

The severe attrition made it necessary to change the intended statistical design of the experiment. Initially an analysis of variance based on samples of equal size in each displacement

class in each phase of the test was planned. There were to be 13 vehicles tested in each of the 27 displacement classes. Later it was recognized that one vehicle in each displacement class should be tested twice to provide replication test data for the ANVAR analysis. To avoid increasing the total number of tests called for in the contract it would have been necessary to reduce the number of vehicles tested to 12 per class with one in each class retested. This would still give the required total of 13 tests x 27 displacement classes x 3 phases x 2 cities = 2106 tests for data analysis. In addition, 270 vehicles were to be tested to allow for attrition, 81 in each city in Phase I, and 54 in each city in Phase II, making a grand total of 2376 tests. The attrition tests, however, were not to be used in the analysis.

The schedule called for a total of 864 tests including replicate and attrition tests to be conducted in the two cities in Phase I. Actually, OLI conducted a total of 929 tests in Phase I, which was thought to be more than adequate. In Phase II, however, it was possible to retrieve only 10 vehicles in some of the displacement classes. This meant that the cell size for the balanced ANVAR would have to be

dropped from 12 to 10*, and that numerous valid tests in Phase I and II could not be used in the analysis. It was hoped that a minimum of 9 vehicles per cell could be obtained in Phase III. Although some cells in Phase III remained as high as 12 or 13, severe attrition in others caused them to drop to as low as 5. As a result, a balanced ANVAR analysis became impractical. Over half the tests in the program would have to be discarded, and the significance of the results would be drastically reduced.

In order to find a way to deal with the unbalanced sample, OLI employed the services of a statistical consultant, Mr. G. W. Thomson. The method of analysis employed by Mr. Thomson is used for handling unbalanced experiments of this type, and is known as an Unbalanced Analysis of Variance by the Method of Unweighted Means. It has been widely used for agricultural experiments where imbalance is the rule rather than the exception. The method is described in detail in Appendix E-1. The design used in this analysis is a three-way crossed factorial design with factors for the two cities, the three phases and the 27 vehicle displacement classes. Since the resulting statistical

* Later it was found that 2 vehicles in one of these classes had to be dropped because the emission control device was an air pump instead of engine modification.

design is a design with vehicles nested in individual subclasses, it loses the benefit of crossed comparisons for individual vehicles and phases in the analysis of variance. On the other hand, the unbalanced design permits the use of all tests (including attrition tests), thereby strengthening the statistical comparisons by the use of tests that would have been discarded in the balanced design. Use of this method of analysis was approved by the Project Officer.

The number of vehicles in each displacement class or sample cell used in the final analysis ranged from 15 to 19 in Phase I, 8 to 16 in Phase II, and 5 to 13 in Phase III. As a result, the average number of vehicles in each cell in the unbalanced analysis of variance is 12.57. Originally there were to be 12 in every cell. Overall, 2202 tests were used in the final test structure, compared to 2106 intended originally. A breakdown of the intended and actual test structures for data analysis is shown in Table 3-1.

TABLE 3-1

COMPARISON OF INTENDED AND ACTUAL TEST STRUCTURES

City	Phase I			Phase II			Phase III			Test Summary		
	Vehicles	Replicates	Tests	Vehicles	Replicates	Tests	Vehicles	Replicates	Tests	Regular	Replicate	Total
ORIGINAL INTENTION FOR DATA ANALYSIS												
Kansas City	324	27	351	324	27	351	324	27	351	972	81	1053
Houston	324	27	351	324	27	351	324	27	351	972	81	1053
Total	648	54	702	648	54	702	648	54	702	1944	162	2106
ACTUAL OUTCOME FOR DATA ANALYSIS												
Kansas City	443	27	470	341	28	369	251	33	284	1035	88	1123
Houston	430	29	459	315	28	343	259	28	277	994	85	1079
Total	873	56	939	656	56	712	500	61	561	2029	173	2202

FIGURE 3-1

Olson Laboratories Incorporated

22805 MICHIGAN AVE. DEARBORN, MICHIGAN 48124

Vehicle Number

AGREEMENT

Your vehicle is being loaned to Olson Laboratories, Inc. for use in an important new program for cleaner air, sponsored by the United States Department of Health, Education and Welfare, Contract No. CPA 22-69-158. This agreement, signed by the president of Olson Laboratories, Inc. is your assurance of full protection against any loss sustained by accident or damage to the vehicle while in the possession of Olson Laboratories, Inc. or its representatives.

1. In consideration of the sum of .....dollars, I, ... agree to loan my vehicle described as a ..... registered in the State of ....., license plate number ..... to Olson Laboratories, Inc. for a period of time not to exceed five days. I understand that I may refuse to loan the vehicle to Olson Laboratories, Inc. at any time and that I am under no obligation whatever to Olson Laboratories, Inc.

2. Olson Laboratories, Inc. agrees to be fully responsible for any and all damage to the vehicle occurring while the vehicle is in the possession of Olson Laboratories, Inc. or its representatives. Possession is hereby defined as care, control, custody, operation, inspection or storage between the time the vehicle is received from the owner by Olson Laboratories, Inc. or its representatives and the time the vehicle is returned to the owner by Olson Laboratories, Inc. or its representatives.

3. Olson Laboratories, Inc. agrees to indemnify and hold harmless the vehicle owner of any repairs, damage, loss or liability sustained by the vehicle owner by reason of accident or damage to the vehicle while in the possession of Olson Laboratories, Inc. or its representatives.

4. Olson Laboratories, Inc. agrees to provide primary automobile liability insurance on the vehicle while in the possession of Olson Laboratories, Inc. or its representatives.

5. Olson Laboratories, Inc. agrees to be extremely careful in the use of the vehicle, and agrees to return the vehicle to the vehicle owner in as good exterior, interior and operating condition, except for normal wear and tear, as when the vehicle was received by Olson Laboratories, Inc. or its representatives.

6. Agreed to this .....day of ....., 19.....by

Donel R. Olson

.....and .....

Donel R. Olson, President
Olson Laboratories, Inc.

Vehicle Owner

.....

Payment Received: Amount.....Check No.....Date .....Initial.....

Condition of vehicle when received by OLI:

Condition of vehicle when returned by OLI:

Initial.....Date .....Initial.....Date .....

SECTION 4

INSTRUMENTATION AND EQUIPMENT

4.1 DESCRIPTION

The instrumentation and test equipment listed below were used for vehicle emission measurements at both test sites.

- OLI complete vehicle exhaust sampling and analysis system consisting of:
  1) Five (5) Beckman Model 315 or 315A NDIR analyzers for measurement of low range HC, high range HC, CO, CO_2, and NO.
  2) Three (3) Texas Instrument or Honeywell Strip Chart Recorders.
  3) Standard EPA design sampling system.
  4) OLI/PCS (Hewlett-Packard) Data Reduction System.
  5) PCS Driver's Aid and Pendant.
- OLI Calibration Gases traceable to EPA Gold Standards.
- Clayton C-200 variable inertia dynamometer with incremental inertia loading.
- Diagnostic instruments such as calibrated tachometers, vacuum and compression gauges, dwell meters, and timing lights.
- A winch to pull and fix the vehicle on the dynamometer.
- An air compressor, battery charger, and other miscellaneous equipment.

The same analytical system and OLI/PCS data reduction equipment were used for all Phase I testing, first in Kansas City, then in Houston. This system and an updated data reduction system were used for Phase II and Phase III testing in Kansas City. A similar updated analytical system was provided for Phase II and Phase III testing in Houston. Provision of the second system was made necessary by the award to OLI of the National Surveillance (six-cities) contract which required simultaneous testing in both cities.

Added features and capabilities provided in the updated data reduction systems are discussed in Section 4.2.5.

4.2 SYSTEM QUALIFICATION

In order to insure accurate exhaust emission data throughout the program, all equipment, data processing hardware, software, calibration gases, and test procedures were qualif ed by the Division of Motor Vehicle Pollution Control. System qualification consisted of establishing the concentrations of a complete set of calibration gases in relation to EPA standard gases, and standardization of the complete analysis system with respect to a DMVPC system by means of simultaneous exhaust emission tests on several vehicles. This work was done at the DMVPC Laboratory in Ypsilanti, Michigan. Then to insure continuing qualification, periodic "on site" cross-checks were made by EPA using their Automatic Dynamic Calibrator (ADC), and by testing the same vehicle at the

DMVPC and at each test site. Simultaneous tests on a vehicle with the OLI system and a portable DMVPC system were also conducted in the latter part of the program to insure continuing qualification.

4.2.1 Qualification of Original Analysis System

The original OLI exhaust gas analysis system was brought to the Division of Motor Vehicle Pollution Control at Ypsilanti, Michigan on September 4, 1969 for standardization. Standardization testing and correction of system defects by OLI and DMVPC personnel took about two weeks to accomplish. At the end, standardization of the LHC, HHC, CO, and CO_2 systems proved successful in Federal Cold Start tests on three different vehicles with both analysis systems sampling the exhaust simultaneously. Standardization of the NO system could not be established at this time, however, as the DMVPC NO analyzer had not yet been installed in the DMVPC system.

In conducting the simultaneous tests, a special double probe was inserted in the vehicle's tail pipe, and separate sample lines were run to each system. Tests had been performed previously to show that there was no interaction between the two sampling systems despite the proximity of the two probes in the tail pipe. Emittant concentration values (not adjusted by factors for dilution and weighting) were compared on a mode-by-mode basis.

For a given mode the maximum allowable concentration difference between the two systems was set at two percent of instrument full scale reading for each analyzer. This tolerance was the same as that used by DMVPC for qualifying its in-house analysis systems.

The standardization procedure required that the above tolerances include any variations in concentration readings due to lack of precision in span gas analysis, recorder calibration, and hand reading of strip charts. This requirement made the allowable error a much stricter tolerance limit for the OLI-DMVPC standardization than for in-house DMVPC standardizations, since for the latter both systems employed the same span gases and the same electronic data reduction unit. The concentrations of the OLI span gases had been established by DMVPC. OLI and DMVPC personnel operated their respective systems simultaneously and hand read their strip charts independently.

Strip-chart-to-strip-chart agreement within the aforementioned tolerance limits was finally achieved in simultaneous Federal seven-mode Cold Start tests on three different vehicles, after correcting some problems in both systems. With two of the vehicles, some individual modes were voided by system operator errors or by hang-up in the high hydrocarbon analyzers of both systems. With the remaining vehicle, operation was flawless over all 42 modes. Simultaneous electronic integration of

the concentration values of the two systems by the DMVPC computer showed differences of less than 2 PPM HC, 0.01 percent CO, and 0.01 percent CO_2 in the cold start composite results.

The integration accuracy of the OLI-PCS computer system was not checked at this time. The system employed a fixed time method of initiating integration, whereas the DMVPC system initiated integration upon a change in emittant concentration. The fixed time design could give somewhat inaccurate results if exhaust gas concentration changes were slower than normal or faster than normal at the tailpipe. OLI agreed to have the system modified. The conversion, however, would have taken several weeks. Therefore, it was decided to postpone the conversion, and to check the agreement between the computer output and strip chart derived values after the conversion was made. This was done later to the satisfaction of the Project Officer before initiation of testing at Kansas City.

After agreement was achieved, the Olson analyzer curves were checked with EPA standard calibration gases. The analyzers read the concentrations exactly. The analyzer curves had been constructed with these same gases two weeks earlier. In the meantime the whole system had been trucked back and forth between Ypsilanti and Dearborn for correction of

plumbing defects. Hence, it was evident that the analyzers were quite stable and insensitive to loading and transportation shocks.

4.2.2 Qualification of Calibration Gases

Ten gas cylinders, representing 23 gas concentrations (six LHC, seven CO, seven CO_2, and three HHC) were checked by DMVPC against their standard gases prior to the start of the program. These became the OLI standards and were used during the program to name working gases and to construct new analyzer curves when necessary. Since DMVPC did not have standard NO gases when the program started, the OLI analyses of standard NO gases for the program were accepted pending establishment of EPA standards. The concentrations of these gases were checked and approved by DMVPC following the completion of Phase I testing.

4.2.3 Periodic System Cross-Checks (Original System, Phase I)

Before and during testing at each city, cross-checks between the OLI system and the DMVPC system at Ypsilanti were made by DMVPC personnel using their ADC. This device produces cyclical changes in concentration using calibration gases of known analysis, and provides a means to check analyzer readings, system response time, mode integration, and computer calibration under steady state and transient sample

flow conditions. Also during Phase I, Federal seven-mode tests were conducted at each location on a DMVPC vehicle previously tested at Ypsilanti. These cross-checks made it possible to maintain system qualification throughout the program.

On September 24, after the OLI system was set up in Kansas City, a preliminary cross-check was made by DMVPC using their ADC. A cyclic test run with three-component gas mixes introduced through the tailpipe probe gave results for each component that were within two percent of full analyzer scale, indicating satisfactory system operation. In addition, various Olson standard gases were run through the system and read. Results agreed with established gas values within a few PPM HC and a few hundredths percent CO and CO_2, indicating that the analyzer curves were not disturbed during loading and transporting of the equipment to Kansas City.

The NO analyzer could not be checked because the standard NO gases were not yet on hand. Also, it was still necessary to set up and calibrate the dynamometer, to set up the on-line data analysis system (computer), and to modify the software so as to initiate integration upon a change in concentration for all emittants except NO_x. (Triggering

of NO_x mode integration was to be left on a fixed time basis at the request of DMVPC.) These tasks were accomplished before testing commenced at Kansas City.

Another cross-check, made with the ADC on October 25, confirmed standardization to the satisfaction of DMVPC, and allowed testing to begin. Initially, every twentieth test was hand read as detailed in the Federal Register and compared to the computer print-out results to establish reliability of the data processing equipment. After reliability was assured to the satisfaction of the Project Officer, only spot checks were made thereafter. Near the end of Phase I, on January 22, 1970, another ADC test was conducted. It showed that the system had not changed. In addition, a DMVPC vehicle which had been previously tested at DMVPC facilities in Ypsilanti was given a complete seven-mode, seven-cycle test. This test gave additional evidence that standardization of the system as a whole was maintained during Phase I at Kansas City.

The system was moved to Houston, Texas in March, 1970 for Phase I tests there. On March 23 and ADC test was conducted on the HC, CO, and CO_2 systems. The next day a complete seven-mode, seven-cycle test was conducted on a DMVPC vehicle that had undergone similar tests at the DMVPC laboratory. These cross-checks against the DMVPC equipment confirmed

standardization to the satisfaction of the Project Officer for all systems except NO. The NO analyzer was out of order and could not be immediately repaired. At the request of the Project Officer, testing was commenced at Houston on March 25 without repairing the NC instrument. The instrument was repaired, and the NO system was checked with the ADC on April 8. By agreement with the Project Officer, cars tested while the NO instrument was out of order were to be retested if possible. Out of the 90 cars tested during this period, 40 were recalled and retested later.

On June 10 and 11, near the end of Phase I testing at Houston, DMVPC conducted a second ADC test and analyzed some of the strip charts from vehicle tests. Results were compared with OLI computer output. Several corrections in system delay times were made to improve the agreemont between strip chart values and computer values.

4.2.4 Requalification of Original System

After completion of Phase I testing in Houston, the original analytical system was brought back to OLI's Romulus facility for a thorough cleaning and general maintenance prior to being requalified by EPA. The system was requalified because it was to become the master system for qualifying the additional systems needed for the National Surveillance (six-cities) Program.

Requalification took place at EPA facilities at Ypsilanti, Michigan from July 1 to July 8, 1970. The procedures and tolerances used were the same as those employed during the prior standardization tests. This time, however, the NO analyzers were also standardized, and the NO standard gases checked against EPA standards. The NO concentration values used by OLI during Phase I were found to be satisfactory. It was decided that standardization should again be established by comparing the derived strip-chart values, although computer-to-computer and computer-to-strip-chart comparisons were also made. The EPA was satisfied that the analytical systems were still in agreement including the NO analyzers. The computer-to-computer and computer-to-strip-chart comparisons gave additional evidence of satisfactory standardization.

This system now became OLI's master system. For instance, analytical system slated for use in Houston would be standardized against the master system on a computer-to-computer basis. Following requalification at EPA, the OLI master system was returned to Kansas City in July, 1970, for the start of Phase II testing.

4.2.5 Qualification of Houston Analytical System

The analytical system to be used in Houston was delivered to Kansas City in September, 1970. Preliminary tests showed

that the system was not ready for standardizing. There was a problem with the CO_2 analyzer and the sample lines needed cleaning. A complete cleanup was performed and all the analyzers were retuned and rephased, etc. before standardization was attempted.

Also, prior to standardization, OLI made some modifications in the OLI/PCS data handling system. In general the changes were instituted to improve test quality and reliability. For example, the update provided OLI with the capacity to monitor the engine RPM, and the test drivers performance over the entire cycle. The results appear on the computer printout of each test.

Other modifications included a computer curve fit program, direct (teletypewriter) input to the computer of all information necessary to convert concentration readings to mass values and also to compute the humidity correction factor to be applied to the calculated NO mass values. Also an improved driver's aid system was incorporated to make it easier for the driver to follow the cycle, and thus improve test repeatability and reliability.

The same modifications were incorporated in the OLI master system at this time. Also, some calibration gases for the Houston system were rechecked by EPA because discrepancies were found in checking them against previously standardized

OLI gases. By late September both systems were ready for standardization of the Houston system.

The computer-to-computer method of standardization was more comprehensive than a strictly analyzer-to-analyzer comparison or a strip-chart-to strip-chart comparison because it involved the complete system - data processing equipment as well as calibration gases, analyzers, and flow systems. The tolerances for the LHC, HHC, CO and CO_2 analyzers remained the same; the maximum allowable difference between concentration values for the same mode on the two computer printout sheets was two percent of the instrument full scale reading. In addition a four percent tolerance was set for the NO concentration values. Based on results from the requalification of the OLI master system in July, this was considered to be a more realistic criterion to meet than two percent. These criteria applied to the complete Cold Start test. In other words there were 168 (6 cycles x 7 modes/cycle x 4 emittants) possibilities for errors. For system-to-system standardization, complete seven-mode emission tests were required on three different vehicles. Thus a total of 168 x 3 = 504 individual measurements were recorded. It was a requirement that less than five percent of these exceed the tolerances.

In order to meet these high standards every possible adjustment becomes extremely critical and great care was taken in setting bypass rates, system time delays, etc., on the Houston system. At the same time bypass rates and other settings on the OLI master system were double checked to be sure no changes had occurred since requalification tests at Ypsilanti.

On September 28, three vehicles were tested for the qualification of the Houston analytical system in the presence of EPA representatives. The total number of errors was 25 (eight on each of the first two vehicles and nine on the third). The Houston system was now qualified to the EPA's satisfaction, and it was taken to Houston, where Phase II testing began on October 15, 1970.

4.2.6 Periodic System Cross-Checks (Updated Systems)

On site periodic checks were made at both Kansas City and Houston facilities to insure that both analytical systems were still in agreement with the EPA system, and operating to their satisfaction. These inspections also provided an opportunity to correct any problems that might have arisen in connection with procedures and record keeping.

The periodic checks made by EPA during Phase II and III again involved the use of the ADC, as in Phase I. Simultaneous emission testing also took place using the EPA's mobile testing equipment. Other tests that were performed on these periodic visits included leak checks, analyzer curve checks, wet N_2 and CO_2 response checks, analyzer response time, and hydrocarbon hang-up checks.

Periodic checks were made in Houston in October, 1970, at the start of Phase II testing and in July, 1971, near the completion of the program. Periodic checks were made on the master system in Kansas City in September, 1970, prior to the Kansas City-Houston correlation, and in June, 1971, near the end of Phase III testing. This final cross check actually took place in Washington D.C. where the master system was being used in the National Surveillance Program.

The only serious problem brought to light by any of these cross checks occurred in Houston during Phase III. The check in July, 1971 revealed an internal nitrogen leak past a 3-way valve in the low-range hydrocarbon (LHC) sample stream. Leak measurements on the sampling systems showed that only the LHC system was affected, and that the sample was being diluted 13 to 16 percent. The leak was corrected and a program was initiated to determine whether previous data had been affected. The system had been

thoroughly checked and found satisfactory on April 16, 1971. Twenty-eight (28) vehicles that had been tested in sequence during the possible period of the leak were recalled and tested again. A method was devised to adjust the hydrocarbon results of the two tests on each vehicle to the same CO level, in order to eliminate the effect of a change in air-fuel ratio on hydrocarbon results. Statistical analysis showed good evidence that the percentage change in hydrocarbon level increased with time. In other words, the leak was very small at the start of the period and increased steadily with time. A least squares straight line fitted through these engine emission data gave very close to the same amount of leak at the end of the period as the amount found by the bench test and indicated that the leak started about April 26. A correction procedure based on the linear relation found was accepted by the Project Officer. All cycle 1-4, cycle 6-7, and composite hydrocarbon data obtained in tests made between April 26, 1971 and July 19, 1971 were corrected by dividing by 1.2088 - 0.0018 Day No., where Day No. is the serial number of the day in 1971; 1 for January 1, 1971.

The investigation and correction of the leak problem was described in detail in a separate report to EPA dated October 8, 1971 and entitled "Effect on Hydrocarbon Emission Data of Leak Found in Houston Sample Train on July 19, 1971".

SECTION 5

TESTING AND CALIBRATION PROCEDURES

5.1 EMISSION TEST PROCEDURES

5.1.1 Initial Vehicle Inspection

Prior to accepting a vehicle for participation in the program, it was given an initial inspection for suitability. The exhaust system was checked for leaks, and the tires checked for excessive wear. Also, the vehicle was given a brief under-the-hood visual check to be sure the engine had not been modified by the owner in such a way as to make it non-representative.

Following the acceptance of a car into the program, the participant was asked to keep a record of any maintenance performed on the car between tests. When the participant brought the car in during Phase II and Phase III testing, a check list was voluntarily filled out indicating what type of maintenance had been performed.

5.1.2 Federal 7-Mode, 7-Cycle Cold Start Exhaust Emission Test

Each vehicle was soaked indoors for a minimum of twelve hours at 60° - 86°F, and was pushed or winched onto the dynamometer, and fixed into place. The sample probe and exhaust tubing

were connected, the hood raised and the cooling fan placed into position. The fuel pump was connected to a supply of Indolene test fuel, and the fuel line from the tank clamped shut. A few vehicles were equipped with a fuel return line. If so, this line was also disconnected and clamped, and a return line attached to the Indolene supply.

The inertia weight was set (the road load horsepower was always preset using the previous vehicle), and the tachometer pick-up (in Phases II and III) connected to the coil to complete the vehicle preparation prior to testing. The inertia weight was determined by first adding three hundred pounds to the vehicle weights found in the "Ethyl Passenger Car Data" hand books for 1968 and 1969. Then the equivalent inertia weight was found in the Federal Register. The road load horsepower was preset to either four or eight horsepower. The lower setting was used for VW's and the higher setting for all other cars.

The analytical system was calibrated (see Section 5.2.6) and all the necessary information entered into the computer. This data included information about the vehicle being tested (make, model, year, CID, odometer, serial number, etc.), and information needed by the computer to calculate modal correction factors, humidity correction factor for NO_x, and mass emission results. This latter data included

the inertia weight, transmission, wet bulb and dry bulb temperatures, barometric pressure, and a modal correction factor code.

At this point the computer "asked" for a zero check on each analyzer. The test could not be continued until this check was performed. If the analyzer zeros differed from true zero by more than 0.5 percent of the analyzer full-scale value, the test could not continue.

The Federal 7-mode, 7-cycle Cold-Start exhaust emission test was performed according to procedures specified in the 1966 Federal Register, Volume 31, No. 61, Part II. During the test, a speed-time trace was recorded on a strip chart, giving a permanent record of driver performance. An additional check on driver performance was provided by the computer, which recorded the number of deviations from prescribed limits ($\pm$ 1 MPH on steady states, $\pm$ 3 MPH on accelerations, and + 3 MPH on decelerations) for each mode. The number of deviations occurring during the integrated portion of each mode became a part of the computer printout information. The computer also monitored the length of each deviation in seconds and tenths of seconds. At the end of each cycle the computer printed out the total number of deviations (including those occurring in the non-integrated portions

of the test), and the time duration of the maximum deviation.

During the fifth cycle the analytical system was purged and reconditioned. The sample pumps were shut-off, the analyzers were purged with nitrogen, the condensate traps were drained and the sample lines were backflushed. The particulate filters were changed and the analyzer zeros were all reset. The analytical system was brought back on stream at the beginning of the sixth cycle idle mode.

5.1.3 Additional (Hot Start) Emission Tests

Following the basic Cold Start emission test the idle RPM, the basic ignition timing and the dwell setting were measured by the test driver for each vehicle in all phases. These values were recorded on the computer print-out sheet with a notation as to whether the idle speed was taken in neutral or in drive gear.

During Phase I testing, if the vehicle's idle speed and/or timing did not agree with the manufacturers specifications (within $\pm$ 75 RPM and/or $\pm$ 2°), these idle adjustments were reset and an additional set of two 7-mode hot cycles was run. The idle was set back to the "as received" condition before returning the vehicle to the participant. After the completion of Phase I, the Project Officer decided that enough of this type of data had been obtained. The contract

was modified to investigate the effect of air filter restriction instead of idle adjustments in subsequent phases.

During Phase II and Phase III, the air cleaner elements were checked with a modified AC Air Filter Tester after each test and if the element had an excessive restriction (compared to an identical clean one), additional hot cycles were run with the clean element. Due to some confusion, at the beginning of Phase II some cars were rerun with clean elements and adjusted idle settings.

Each air cleaner element was marked and carefully handled so that it could be returned to the vehicle in the same position and condition as it was found. The restriction limit was set (and adjusted several times) in order to fail approximately 20 percent of the air cleaner elements.

In order to record information on possible causes of high emissions, a section of the computer print-out sheet was reserved for comments by test personnel. Comments entered included drivability remarks by the driver, and general remarks about the condition of the vehicle. Examples included obvious misfiring or generally poor performance, a spark plug wire that was shorting across the exhaust manifold, clogged PCV valve, etc. These observations and comments were helpful in understanding the cause of excessively high emission levels in individual tests.

Follwoing completion of vehicle testing, the driver reset the power absorption unit for the next test, and the analytical system operator performed the necessary checks to validate the test.

5.1.4 Data Reduction

The OLI/PCS data reduction system was programmed to do all the necessary calculations at the completion of each test.

The modal correction factors were calculated as specified by the Federal procedure, using the formula:

$$cf = \frac{15}{\%CO + \%CO_2 + (6)\%HC}$$

For those cars equipped with a fuel shut-off device, such as the fuel injected Volkswagens, a switch was activated on the system console and the computer automatically used the idle mode correction factor for the two deceleration modes.

The conversion to grams per mile was not necessary to satisfy the conditions of the contract, but since the computer was already programmed for this function, it came as a bonus. The conversion from composite concentration to mass values was made per the Federal Register, Volume 33, No. 108, Part II. The value of 54.16 gms/ft^3 was used for the density of NO in converting the concentration results to a mass equivalent.

A humidity correction factor was applied to the NO_x results to relate them to an absolute humidity of 75 grains of water per pound of dry air. The humidity correction factor (K) was determined by the following formula:

$$K = 0.796 + 0.00175H + 0.0000129H^2$$

where H is the humidity at test conditions in grains of water per pound of dry air. H was calculated by the computer from the wet bulb and dry bulb temperature readings and the barometric pressure.

5.1.5 Quality Control

The following standard procedures were followed by OLI throughout the program:

A) Test Site Quality Audit: The results of each test were checked briefly for obvious analytical system or test operational errors before the vehicle was returned to the participant. If the results or testing procedures were in doubt, the vehicle was held over and the test rerun.

B) Calibration Gases (Daily Working Gases): The concentrations of OLI working gases were checked initially against the

concentrations of OLI standard gases, and were re-checked each time an analyzer curve check was performed. The working gases were changed when the cylinder pressure dropped below 150 pounds.

C) Cleaning and Maintenance of Analyzer Systems: Periodic cleaning and maintenance was done primarily on the basis of tailpipe purge results and analyzer performance. When it was deemed necessary, the sample lines and sample probe were replaced or cleaned with an organic solvent such as trichloroethylene. Sample cells and cell windows were similarily cleaned. Other maintenance, such as retuning the analyzer oscillator assembly or rephasing the magnetic switches, was done as the analyzer operation indicated a need for it.

D) Record Keeping: Daily records were kept of analyzer tune and gain settings, leak checks, LHC and HHC analyzer response to 100 percent CO_2 gas, tailpipe purge responses, working gas cylinder pressures, and a teletypewriter printout of the computer responses to the span and zero gases. Records of any maintenance

done on the analytical system or the dynamometer were also kept.

5.2 CALIBRATION AND ANALYTICAL SYSTEM CHECK OUT PROCEDURES

In addition to a number of periodic checks made by EPA, OLI performed a series of daily, weekly, and monthly system checks.

5.2.1 Leak Checks

On a daily basis, the sample system was leak checked by blocking the inlet to the sample probe, turning the sample pumps on, and observing the rotameter readings (and pressure gauges if so equipped). An internal nitrogen leak problem discovered in Houston by EPA during a periodic cross-check prompted the adoption of an additional leak check technique. If any anomalies appeared on a daily check, the span gases were checked through the entire sampling system. These readings had to be the same or slightly higher (due to hang-up) than the same gases introduced directly into the analyzers.

5.2.2 CO_2 Interference Checks

Before beginning the first test in the morning, the low and high hydrocarbon CO_2 interference cells were recharged with wet 100 percent CO_2 under slight pressure. Then prior

to each test the LHC analyzer response to dry 100 percent CO_2 was checked and recorded on the instrument strip chart. If necessary, the interference cell was recharged before proceeding with the test. The HHC analyzer response was checked in the morning and following every cell recharge.

5.2.3 Tailpipe Purge (Hang-Up) Check

Before the start of testing and at the completion of each test, nitrogen was passed through the analytical system, starting at the sample probe, to determine system hang-up. The results were recorded on the strip charts. If the hydrocarbon reading was higher than 1.0 - 1.5 percent of full scale, as it would often be after testing a particularly "dirty" vehicle, the system was purged and backflushed until the hang-up was brought back to normal. This was accomplished before another vehicle was tested.

5.2.4 Data Reduction System Check

The analog to digital converter was given a "zero" and "span" check once a day, and adjusted if necessary. Also, the interface unit was checked each day by obtaining a zero voltage output from each analyzer on the system's digital voltmeter (DVM) and checking the computer response. The interface unit was adjusted if necessary to give a computer printout of zero (or close to zero) for each analyzer.

5.2.5 Flow Rates and Bypass Rates

The flow rates were checked on a test to test basis especially during the first and sixth cycles. Each morning, the zero gas (nitrogen), the span gas, and the 100 percent CO_2 gas flow rates were also checked and reset,if necessary, so that the entire calibrating procedure could be completed without changing any flow control valve settings.

At least once a week the system bypass rates and the maximum sample pump flow rates were also checked. After confirmation that the sample pumps were still functioning properly, the bypass rates were set back to system specifications.

5.2.6 Analyzer Adjustment Checks

The following check procedure was carried out before each test. All the analyzers were zeroed on nitrogen, and spanned with two calibration gases. A high span gas was used to set the analyzer gain, and an intermediate span gas was used as a check on the integrity of the analyzer curve. A record of each adjustment was preserved on the instrument strip charts. Also, a computer printout was obtained for each calibration checking the zero, high and intermediate span points. At the end of each test, the zero and both span points were rechecked without any zero or gain adjustments and the results recorded on the strip charts.

The recorders were also checked each day. The zero and span settings were adjusted to agree with the system digital voltmeter readings.

5.2.7 Analyzer Calibration Curve Checks

Analyzer curves were rechecked every four to six weeks with OLI standard gases traceable to EPA Gold Standards. This was also done by EPA during their periodic "on-site" cross checks.

The analyzer curves were generated by the PCS data reduction system. The computer software fitted a calibration curve through a number of known points (determined by the standard gases). The mathematical method employed in the software program to fit the curve and interpolate between points is based on the Lagrangian form of the interpolating polynomial. This is the same procedure as used by EPA. The computer calculated and stored the curves internally as tables in units from 0 to 1,000, and referenced these tables to determine concentration values. The teletypewriter printed the tables in one percent increments from 0 to 101 for evaluation by the operator. The same program was used to generate DVM and strip-chart-recorder curves.

5.2.8 System Time Delay Checks

A check was made daily to see that the triggering of integration by the computer upon detecting a change in

concentration was synchronized with the mode change indicated on the strip chart. This was done by checking the time relation on the strip chart between the observed start of a new mode and the pen-mark denoting start of integration by the computer.

In addition, every two weeks the strip charts of a random test were completely hand read and the results compared with computer values.

5.2.9 Miscellaneous Analytical System Checkout

1. Ice Bath: The water level and temperature were checked each day prior to testing.

2. NO Dryer Columns: The indicating Drierite used in the NO dryer columns was checked prior to each test. If necessary, it was changed before testing was initiated.

50<

SECTION 6

RESULTS

6.1 EMISSION CONTROL PERFORMANCE OF IN-USE 1968-1969 MODEL VEHICLES

6.1.1 Scope of Analysis

The study in Section 6.1 presents the mean hydrocarbon (HC) and carbon monoxide (CO) concentrations obtained in Phase I, a comparison of these results with the means of tests in all three phases, and an analysis of the percent of vehicles in Phase I that met the EPA vehicle certification standards. The data in Phase I were chosen for the study since Phase I includes the largest number of vehicles tested (873) and there are no mileage effects connected with the retesting of some but not all of the same vehicles in Phase II and III. Since the standards by which 1968-1969 models were certified were confined to hydrocarbon and carbon monoxide concentrations, the Phase I data presented do not include the data on nitrogen oxide emissions, or the data converted to a grams per mile basis.

The data provide an indication of the exhaust emission levels of vehicles in general use, as part of the effort to ascertain

the effectiveness of Federal air pollution regulations. The Federally established emission standards for certification of 1968 and 1969 model automobiles and light-duty trucks, which vary according to the cubic-inch displacement (CID) of the engine, are listed below:

CID	HC, ppm	CO, Percent
50 to 100	410	2.3
100 to 140	350	2.0
above 140	275	1.5

The procedures for testing and certifying prototype vehicles for compliance with Federal exhaust emission standards were published in the Federal Register, Volume 31, No. 61, March 30, 1966. These procedures required each manufacturer to build and test a specified number of prototype vehicles that would meet Federal emission standards before certificates of conformity were issued to the manufacturer. The procedures did not require that each vehicle produced meet the applicable standards. They did require that the average emission values from a sample of two to four emission-data vehicles of each displacement, depending on projected sales volume, be less than the values stated in the standards, when the values had been modified by a deterioration factor obtained from a fleet of four to ten durability-data vehicles, representative of at least 70 percent of the manufacturers' engine displacement and transmission options.

6.1.2 Mean Emission Levels

52<

6.1.2.1 Phase I Tests

The Federal certification standards (from the table in 6.1.1) that apply to the engine displacement classes represented in the test fleet are as follows:

275 ppm HC, 1.50 percent CO (except Volkswagens)

410 ppm HC, 2.30 percent CO (Volkswagens)

The average emission levels for the 873* vehicles in Phase I (Table 6-1 and 6-2) are:

309 ppm HC, 1.91 percent CO (except Volkswagens)

399 ppm HC, 1.89 percent CO (Volkswagens)

and

316 ppm HC, 1.91 percent CO (all vehicles)

For all vehicles tested, HC emissions in Houston (345 ppm) were about 20 percent higher than in Kansas City (288 ppm), and CO emissions were about 6 percent higher (1.97 and 1.86 percent). A large part of these differences was due to the fact that vehicles with unusually high emissions tended to be more numerous in Houston than in Kansas City.

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* Two of the vehicles tested in Phase I had invalid HC data. Therefore the number of tests with valid data are 871 for HC, and 873 for CO.

In Phase I, for example, the number of vehicles with hydrocarbon emissions greater than 1000 ppm was 8 in Houston compared to 2 in Kansas City; and the number with CO greater than 5.0 percent was 12 in Houston compared to 3 in Kansas City. This tendency was also noted in Phases II and III.

6.1.2.2 All Tests

The average HC and CO levels for all three phases in Kansas City, in Houston, and in both cities are slightly higher than in Phase I. These averages and those for oxides of nitrogen (NOx and NOx corrected for humidity) are presented in the following table. Both concentration and mass equivalent results are shown for the composite 7-mode, 7-cycle cold start tests.

Averages of All Data - Phase I, II, and III[a]

Emittant	Kansas City	Houston	Both Cities
Composite, Concentration			
HC, PPM	308	344	326
CO, Percent	1.90	2.08	1.99
NOx, PPM	1493	1248	1377
NOxC, PPM	1360	1329	1345
Composite, Mass			
HC, grams/mile	3.89	4.03	3.86
CO, grams/mile	43.59	47.26	45.39
NOx, grams/mile	5.52	4.60	5.09
NOxC, grams/mile	5.03	4.90	4.97

a. From the mileage regression analysis data in Appendix G-1, Tables 4, 5, 6, 10, 11, and 12.

TABLE 6-1

MEAN HYDROCARBON CONCENTRATIONS [a]

Federal Seven-Mode Test
871 Cars- Phase I

MAKE	Number of Cars Tested			Mean HC, PPM			HC, Std. Dev.		Average Mileage		
	KC	H	KC+H	KC	H	KC+H	KC	H	KC	H	KC+H
AMC	15	15	30	346	326	336	146	52	15918	23396	19657
Chrysler	66	66	132	310	363	337	247	316	20906	26555	23731
Ford	99	96	195	288	334	311	81	190	18083	22121	20071
General Motors	230	218	448	275	324	299	122	328	20305	24591	22391
Chevrolet	97	97	194	320	395	358	159	470	19471	25102	22287
Pontiac	53	45	98	259	295	276	64	80	20186	24349	22098
Oldsmobile	33	30	63	232	284	257	78	147	16462	23956	20031
Buick	32	31	63	251	259	255	66	46	26478	26931	26701
Cadillac	15	15	30	181	166	174	54	15	21406	18436	19921
ALL VEHICLES EXCLUDING VOLKSWAGEN	410	395	805	286	333	309	142	292	19705	24273	21946
Volkswagen	33	33	66	309	489	399	135	357	19454	23430	21442
ALL VEHICLES INCLUDING VOLKSWAGEN	443	428	871	288	345	316	143	299	19686	24208	21908

a. From Appendix C.

TABLE 6-2

MEAN CARBON MONOXIDE CONCENTRATIONS [a]
Federal Seven-Mode Test
873 Cars- Phase I

	Number of Cars Tested			Mean CO, %			CO, Std. Dev.		Average Mileage		
MAKE	KC	H	KC-H	KC	H	KC-H	KC	H	KC	H	KC-H
AMC	15	15	30	1.86	1.79	1.83	1.12	1.13	15918	23396	19657
Chrysler	66	67	133	1.96	2.13	2.05	0.93	1.33	20906	26904	23928
Ford	99	96	195	1.51	1.59	1.55	0.89	0.87	18083	22121	20071
General Motors	230	219	449	2.02	2.06	2.04	0.84	1.02	20305	24522	22362
Chevrolet	97	97	194	2.10	2.09	2.10	0.93	1.12	19471	25102	22287
Pontiac	53	46	99	1.86	1.86	1.86	0.66	0.72	20186	24028	21971
Oldsmobile	33	30	63	1.92	2.21	2.06	0.75	1.03	16462	23956	20031
Buick	32	31	63	2.44	2.50	2.47	0.82	1.00	26478	26931	26701
Cadillac	15	15	30	1.31	1.25	1.28	0.32	0.35	21406	18436	19921
ALL VEHICLES EXCLUDING VOLKSWAGEN	410	397	807	1.88	1.95	1.91	0.91	1.06	19705	24301	21965
Volkswagen	33	33	66	1.57	2.21	1.89	0.79	1.66	19454	23430	21442
ALL VEHICLES INCLUDING VOLKSWAGEN	443	430	873	1.86	1.97	1.91	0.89	1.12	19686	24234	21926

a. From Appendix C.

6.1.3 Comparison of Measured Emissions with 1968-1969 Model Certification Standards

Twenty-nine percent of the vehicles tested in Phase I had emission levels that met the 1968-1969 certification standards for both HC and CO, and 36 percent failed both of these standards. Table 6-3 shows the percentages of vehicles that met both standards, by manufacturer and by individual GM makes, for Kansas City, Houston and both cities combined. It also shows the average mileages for those vehicles that met both standards.

In the more detailed tables in Appendix D (Table 1, 2 and 3) the percentages are broken down into vehicles which met both HC and CO tests, which met neither test, and which met one but not the other. Since 24 percent met the HC test but not the CO, and 11 percent did not meet the HC test but did meet the CO, it is evident that on the whole it is harder to meet the CO test, when both criteria are considered jointly. The percentages of vehicles which met the CO standards are about 40 percent for each city, but more vehicles in Kansas City (58 percent) met the HC standards than in Houston (48 percent). Tables 4, 5, and 6 in Appendix D are computer diagnostic checks on Tables 1, 2, and 3. They show the number of vehicles that are the basis of the various percentages. The percentages of the vehicles which met the HC standards are based

TABLE 6-3

COMPARISONS WITH CERTIFICATION STANDARDS
871 Cars - Phase I

MAKE	Number of Cars Tested[a]			Percent Meeting Standards[b]			Average Mileage of Cars Meeting Standards[b]		
	KC	H	KC+H	KC	H	KC+H	KC	H	KC+H
AMC	15	15	30	6.7	6.7	6.7	4909	33364	19137
Chrysler	66	66	132	22.7	24.2	23.5	16441	22920	19785
Ford	99	96	195	41.4	30.2	35.9	16418	22617	18986
General Motors	230	218	448	23.9	25.2	24.6	17287	20247	18767
Chevrolet	97	97	194	16.5	26.8	21.6	17694	19943	19086
Pontiac	53	45	98	28.3	17.8	23.5	19456	26100	21767
Oldsmobile	33	30	63	27.3	20.0	23.8	13474	18729	15576
Buick	32	31	63	12.5	9.7	11.1	6959	19770	12449
Cadilac	15	15	30	73.3	80.0	76.7	20615	17880	19188
Volkswagen	33	33	66	72.7	54.5	63.6	16487	19642	17839
ALL VEHICLES	443	428	871	30.7	27.8	29.3	16700	21203	18801

(a) With both HC and CO data
(b) For both HC and CO

on vehicles with at least HC data (SUM 1). Similarly for CO (SUM 2). The percentages in the four columns showing the joint passing and failure are based on vehicles with both HC and CO data (SUM 3). This last total is labeled "Number of Cars" in Tables 1, 2, and 3.

6.2 ANALYSIS OF VARIANCE

6.2.1 Introduction

The broad effects of differences between cities, between phases and between displacement classes were evaluated by an unbalanced analysis of variance (ANVAR) using the Method of Unweighted Means. Technical details of the use of this method are given in Appendix E-1.

The three-way crossed factorial design corresponds to the two cities, the three phases and the twenty-seven vehicle displacement classes. The usual interpretation is complicated by the nature of the experimentation timing schedule; measurements were made in each phase with average odometer mileages about 4,000 miles higher in Houston than in Kansas City. "Phase" effects are naturally related to mileage. The "city" effects are thus at least partly confounded or mixed up with "phase" effects. It is not possible to disentangle the joint effects of mileage, phases and cities without an elaborate covariance

and regression analysis which was not carried out for this study. The general approach to the variance analysis study and the results are discussed below.

6.2.2 Unbalanced Analysis of Variance

The number of vehicles available for testing in Phase I decreased to 75 percent in Phase II and to 57 percent in Phase III. Table 6-4 shows a breakdown by vehicle classes for the various phases. The number of test cars available for each "subclass", that is each class-city-phase combination, varied from 19 down to 5, with an arithmetic mean of 12.57 vehicles per subclass. It was obvious that an analysis of variance of the emission results could not be carried out as a standard balanced three-way factorial analysis of variance. Instead, an unbalanced analysis of variance was carried out by the Method of Unweighted Means. The technical details are given in Appendix E-1. In brief there are 162 subclasses corresponding to the class-city-phase combinations. A balanced three-way factorial ANVAR is made with one item in each subclass. This item is the mean of the test results for that subclass. The ANVAR mean squares are scaled up to put them on an individual rather than on a mean basis.

The fact that measurements are made on the same vehicle in two or three phases had to be ignored in the statistical

TABLE 6-4

NUMBER OF TEST CARS IN EACH SUBCLASS

No	Class	Kansas City			Houston			Class Total
		Phase I	Phase II	Phase III	Phase I	Phase II	Phase III	
1	A1	15	13	9	15	11	10	73
2	C11	15	12	10	17[a]	12	10	76
3	C12	18	12	9	17[a]	12	12	80
4	C13	18[a]	12	9	18[a]	12	8	77
5	C14	15	11	9	15	12	11	73
6	F31	16	13	9	15[a]	13	10	76
7	F32	16	14	13	19	10	8	80
8	F33	17	15	11	17[a]	11	8	79
9	F34	16	12	10	15[a]	11	10	74
10	F35	18	16	9	15[a]	12	10	80
11	F36	16	12	9	15[a]	11	7	70
12	G51	16	11	9	15[a]	13	10	74
13	G52	15	13	12	16[a]	12	10	78
14	G53	17	14	10	19[a]	12	9	81
15	G54	18	16	9	16[a]	11	9	79
16	G55	16	11	9	16[a]	15	11	78
17	G56	15	8	7	15[a]	11	9	65
18	G61	18	14	9	16[a]	10	8	75
19	G62	19	12	9	15[a]	12	11	78
20	G63	16	10	8	15[a]	12	9	70
21	G66	18	14	10	15[a]	14	11	82
22	G67	15	12	9	15[a]	10	6	67
23	G71	16	11	7	15[a]	12	11	72
24	G72	16	12	9	16[a]	11	8[a]	72
25	G76	15	12	8	15	12	9	71
26	V81	18	15	9	17[a]	12	9	80
27	V82	15	14	10	16[a]	9	5	69
TOTAL		443	341	251	430	315	249	2029

a. Some variables have a smaller number of tests

analysis. This loss in statistical effectiveness is partly compensated by the use of a greater number of tests, since it was possible to use the extra "attrition" tests in the unbalanced ANVAR.

6.2.3 Car-to-Car and Test-to-Test Variability

The error term for the unbalanced ANVAR is a pooled estimate of the car-to-car variability within the subclasses. The estimate has over 1800 degrees of freedom. Each subclass has at least one replicate test. Pooled error terms based on the replicates are a measure of test-to-test variability.

Table 6-5 shows that the test-to-test standard deviation is less than half the car-to-car standard deviation for each emission variable. The ratios of test-to-test to car-to-car standard deviations are essentially the same for each variable for cycles 6 and 7 concentration data, composite concentration data, and composite mass data.

6.2.4 ANVAR Results

The ANVAR calculations were made twice, for the data as received and for the data following a logarithm-to-base-ten transformation ("log-transform"). For non-transformed data it is assumed that experimental errors are normally distributed on an absolute basis. For log-transformed data, the errors are assumed to be normally distributed on a

TABLE 6-5

CAR-TO-CAR AND TEST-TO-TEST VARIABILITY

	Standard Deviations		
	Car-to-Car	Test-to-Test	Ratio
Cycles 6 and 7, Concentration			
HC, ppm	218	69	0.32
CO, Percent	1.00	0.25	0.25
NO_x, ppm	485	194	0.40
NO_xC, ppm	475	210	0.44
Composite, Concentration			
HC, ppm	217	69	0.32
CO, Percent	0.98	0.28	0.29
NO_x, ppm	442	171	0.39
NO_xC, ppm	436	190	0.44
Composite, Mass			
HC, gm/mile	2.49	0.88	0.35
CO, gm/mile	22.22	6.88	0.31
NO_x, gm/mile	1.68	0.65	0.39
NO_xC, gm/mile	1.66	0.73	0.44

relative or percentage basis. For example a change in the log of size 0.00432 corresponds to 1 per cent (log 1.01 = 0.00432). These transformations were made to the original emission data - note that averages of log-transformed data will be a little smaller than for non-transformed data. All sums of squares, mean squares, etc. in the ANVAR outputs are in log units. The means have been back-transformed to the original units for convenience. (Appendix E-2.2, Tables E-7, E-8, E-9).

There is good evidence based on prior experience that emission data are best handled on a log-normal basis. (For example, see EPA Office of Air Programs Publication AP-97, November 1971, by D. B. Pinkert, J. M. Marzen, and C. J. Domke on a Rental Vehicle Surveillance Program.)

There are 24 different ANVAR calculations: Three types of variables (cycle 6 and 7; composite, concentration; composite, mass), four emission variables (HC, CO, NO_x, and NO_xC), and two sets of ANVARS (non-transformed and log-transformed). The tables are shown in Appendix E-3. The results have been collected below in Tables 6-6, 6-7, and 6-8 for HC, CO and NO_x (uncorrected and corrected for humidity).

6-6

TABLE 6-6

F-VALUES FOR HC

	Cycle 6, 7	Composite	Mass	5% Point
Non-Transformed Data				
D	11.01*	10.90*	7.83*	1.50
T	2.35	2.21	1.19	3.00
C	15.56*	14.78*	8.49*	3.84
T x D	0.94	0.92	0.67	1.36
T x C	2.13	1.68	1.83	3.00
D x C	3.25*	2.91*	2.29*	1.50
T x D x C	0.64	0.71	0.74	1.36
Log-Transformed Data				
D	25.98*	24.27*	20.06*	1.50
T	2.80	3.48*	3.60*	3.00
C	17.16*	15.07*	10.30*	3.84
T x D	0.94	0.92	0.91	1.36
T x C	5.34*	3.04*	3.02*	3.00
D x C	2.47*	2.07*	2.04*	1.50
T x D x C	0.61	0.65	0.66	1.36

* Beyond 5% level for F

The "effect" symbols are D for Vehicle Displacement Class, T for Phase or Relative Time, C for City.

65<

TABLE 6-7

F-VALUES FOR CO

	Cycle 6, 7	Composite	Mass	5% Point
Non-Transformed Data				
D	14.20*	16.36*	29.39*	1.50
T	5.91*	4.58*	4.12*	3.00
C	11.58*	19.02*	13.52*	3.84
T x D	0.89	0.83	0.77	1.36
T x C	2.94	1.64	1.41	3.00
D x C	2.81*	2.69*	2.32*	1.50
T x D x C	0.96	0.81	0.93	1.36
Log-Transformed Data				
D	15.55*	18.19*	34.76*	1.50
T	5.23*	3.82*	3.95*	3.00
C	5.05*	15.54*	12.04*	3.84
T x D	0.82	0.85	0.84	1.36
T x C	4.33*	2.30	2.12	3.00
D x C	3.28*	2.83*	2.89*	1.50
T x D x C	0.86	0.69	0.71	1.36

* Beyond 5% level for F

The "effect" symbols are D for Vehicle Displacement Class, T for Phase or Relative Time, C for City.

TABLE 6-8

F-VALUES FOR NOx

	Cycle 6, 7		Composite		Mass		
	Uncorr.	Corr.	Uncorr.	Corr.	Uncorr.	Corr.	5% Point
Non-Transformed Data							
D	22.57*	22.55*	23.43*	23.25*	24.92*	25.11*	1.50
T	15.54*	3.70*	17.30*	3.79*	15.45*	2.98	3.00
C	126.18*	1.52	149.63*	4.15*	154.07*	6.47*	3.84
T x D	0.88	0.94	0.83	0.90	0.76	0.80	1.36
T x C	33.22*	4.66*	28.16*	4.22*	27.70*	4.39*	3.00
D x C	1.82*	2.41*	2.00*	2.57*	1.84*	2.40*	1.50
T x D x C	0.70	0.76	0.60	0.68	0.59	0.66	1.36
Log-Transformed Data							
D	16.88*	16.50*	18.06*	17.67*	22.97*	22.90*	1.50
T	18.29*	6.04*	19.31*	6.38*	17.72*	5.47*	3.00
C	110.72*	6.36*	130.23*	9.96*	135.16*	12.89*	3.84
T x D	1.15	1.14	1.08	1.09	1.04	1.06	1.36
T x C	20.95*	2.32*	18.97*	2.60	18.52*	2.64	3.00
D x C	1.68*	1.88*	1.76*	2.00*	1.75*	1.99*	1.50
T x D x C	0.80	0.94	0.76	0.91	0.71	0.85	1.36

* Beyond 5% level for F

(a) Corrected for humidity

The "effect" symbols are D for Vehicle Displacement Class, T for Phase or Relative Time, C for City.

First, the broad effects are considered, with the design interpreted as a three-way crossed factorial. D means displacement class, C city, and T phase or "time". There are large vehicle class effects noted for all emittants considered. Large "city" effects are evident for all emittants, although the NOx F-values are dramatically reduced when the humidity correction is used. The "phase" effects are insignificant or barely significant for HC, significant for CO, and very highly significant for NOx. The large values of F are greatly reduced when the humidity correction is made for NOx. These examples demonstrate the value of the humidity correction when comparing NOx data at different climatic conditions.

The double int raction terms T x D, T x C, and D x C are measures of the interdependence of the effects. If there is no D x C interaction, the city effect for each class tends to be alike. But if some classes have the emission level go up for Houston compared with Kansas City while other classes go down, there is said to be a class-city (i.e. D x C) interaction. The triple interaction term T x D x C extends this idea to three variables. In statistical practice these higher order terms are often used as "error terms" since there is usually no logical reason for the presence of a genuine interaction between that many variables. For these data every value of the

T x D x C triple interactions is less than the car-to-car error term so that these interactions need not be considered further.

6.2.5 Interpretation

The broad conclusions described above require reconsideration before an adequate interpretation of the variance analysis is possible. Vehicle class effects are clear cut - they can only refer to the classes tested. But what of "city" and "phase" effects? The testing for the various phases was done on a rather complex time schedule so that there was no simple relationship in time between the phases in the two cities (see Table 6-9). As a result, the average odometer mileages for the phases in Houston are about 4,000 miles higher than in Kansas City (Table 6-10).

Thus, the cars were not tested in the two cities at the same average car mileage and the Houston measurements for each phase were made at a considerably later car life. The correct way to look at comparisons would be at the same average odometer reading, but "Houston, Phase I" vs the average of "Kansas City, Phase I" and"Kansas City, Phase II" is impractical. Besides, no similar "comparisons" are possible for "Kansas City, Phase I" and "Houston, Phase III" since there is no mileage match.

The best way to look at the "city" and "phase" effects is to relate them to the average mileage for each city-phase

combination. Table 6-11 and Figure 6-1 show the averages for the various city-phase combinations. The more meaningful presentation on Figure 6-2, with the emittant averages plotted against the average mileage, points up the close relation to the overall mileage regression analysis. The lines are based on the overall effects of mileage with all data points considered as a single data set (see Section 6-4 on effects of mileage).

The mileage effect was estimated using the regression coefficients obtained for all vehicles in each city. The Kansas City data were taken to be for average odometer readings of 2000 miles higher and the Houston data to be for 2000 miles lower than the observed average mileages, in order to put both cities on the same basis (Table 6-12). The magnitudes of the city differences were reduced, showing that odometer mileage accounts for part of the city effects. The ANVAR results had indicated very high statistical significance for the unadjusted values. In view of the large "city" effect F-values for all emittants, it is believed that the mileage-adjusted effects are also significant.

As far as phase effects are concerned, it is impossible to disentangle the effect of car ageing, that is phase to phase, from the effects of car odometer mileage since some cars were driven many more miles between phases than others, and some cars started out in the program at very much lower or higher mileages than others.

70<

TABLE 6-9

TEST DATES FOR THE THREE PHASES

	Phase I	Phase II	Phase III
Kansas City	Oct. 69 - Feb. 70	July 70 - Apr. 71	Nov. 70 - May 71[a] Aug. 71 - Nov.71
Houston	Mar. 70 - Jul. 70	Oct. 70 - Mar. 71	Aug. 71 - Sept.71

a. The exhaust gas analytical system was used in Washington DC between May 71 and August 71 to conduct tests for the Six-Cities National Surveillance Project under Contract EHS 70-105.

TABLE 6-10

AVERAGE ODOMETER READINGS

	Phase I	Phase II	Phase III	Total
Kansas City	19686	28753	34150	26181
Houston	24234	32400	38928	30555
Difference	4548	3647	4778	4394

TABLE 6-11

PHASE AND CITY EFFECT COMPARISONS[a]

Composite Data[b]

	Phase I	Phase II	Phase III	Total
HC, ppm				
Kansas City	287	321	319	309
Houston	344	335	364	348
Both Cities	316	328	341	328
CO, per cent				
Kansas City	1.85	1.99	1.89	1.91
Houston	1.97	2.15	2.20	2.11
Both Cities	1.91	2.07	2.05	2.01
NOxC, ppm				
Kansas City	1349	1361	1351	1354
Houston	1385	1307	1245	1313
Both Cities	1367	1334	1298	1333

a. From Anvar means tables in Appendix E-2. See note at beginning of that appendix.

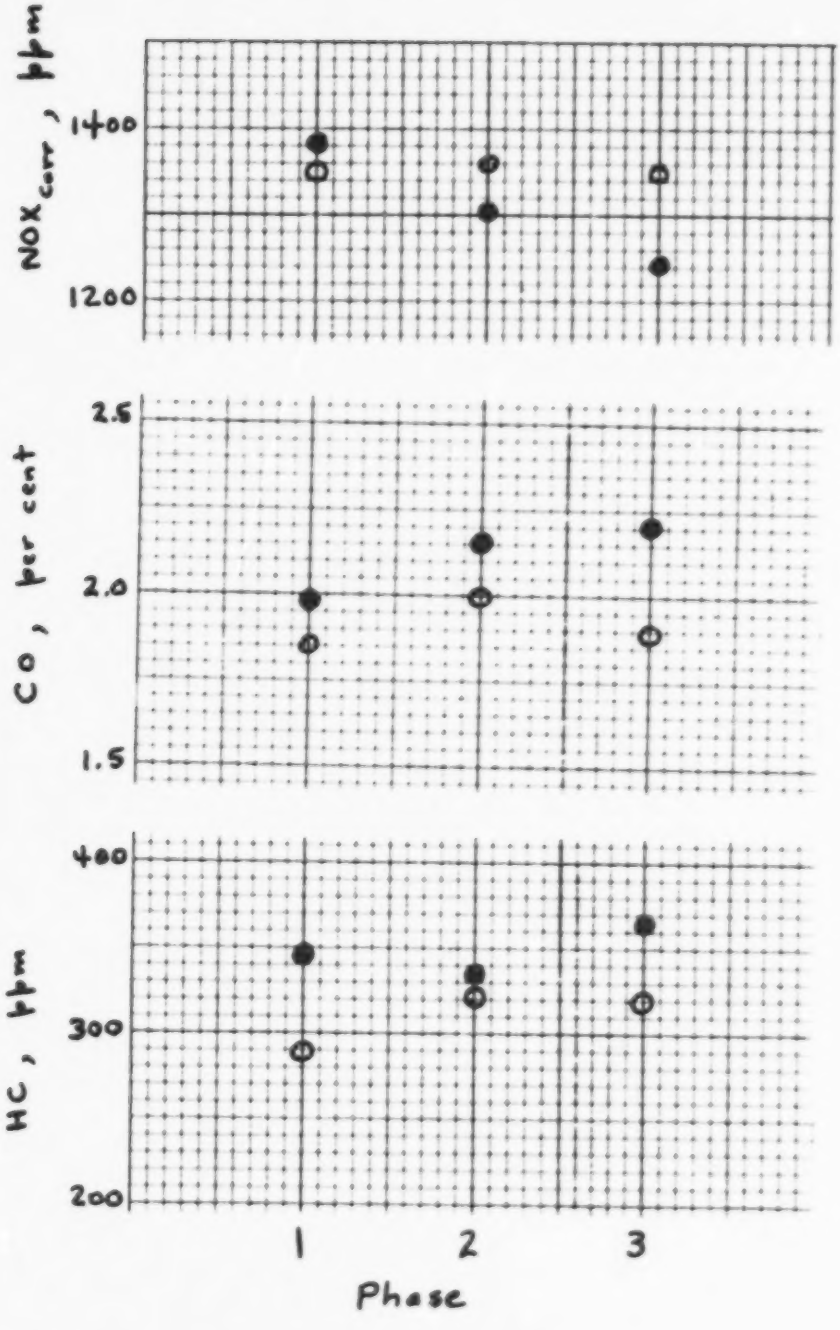
b. Non-transformed data.

FIGURE 6-1 72<

Seven-Mode Composite Data

Averaged over vehicle classes

○ Kansas City
● Houston



73<

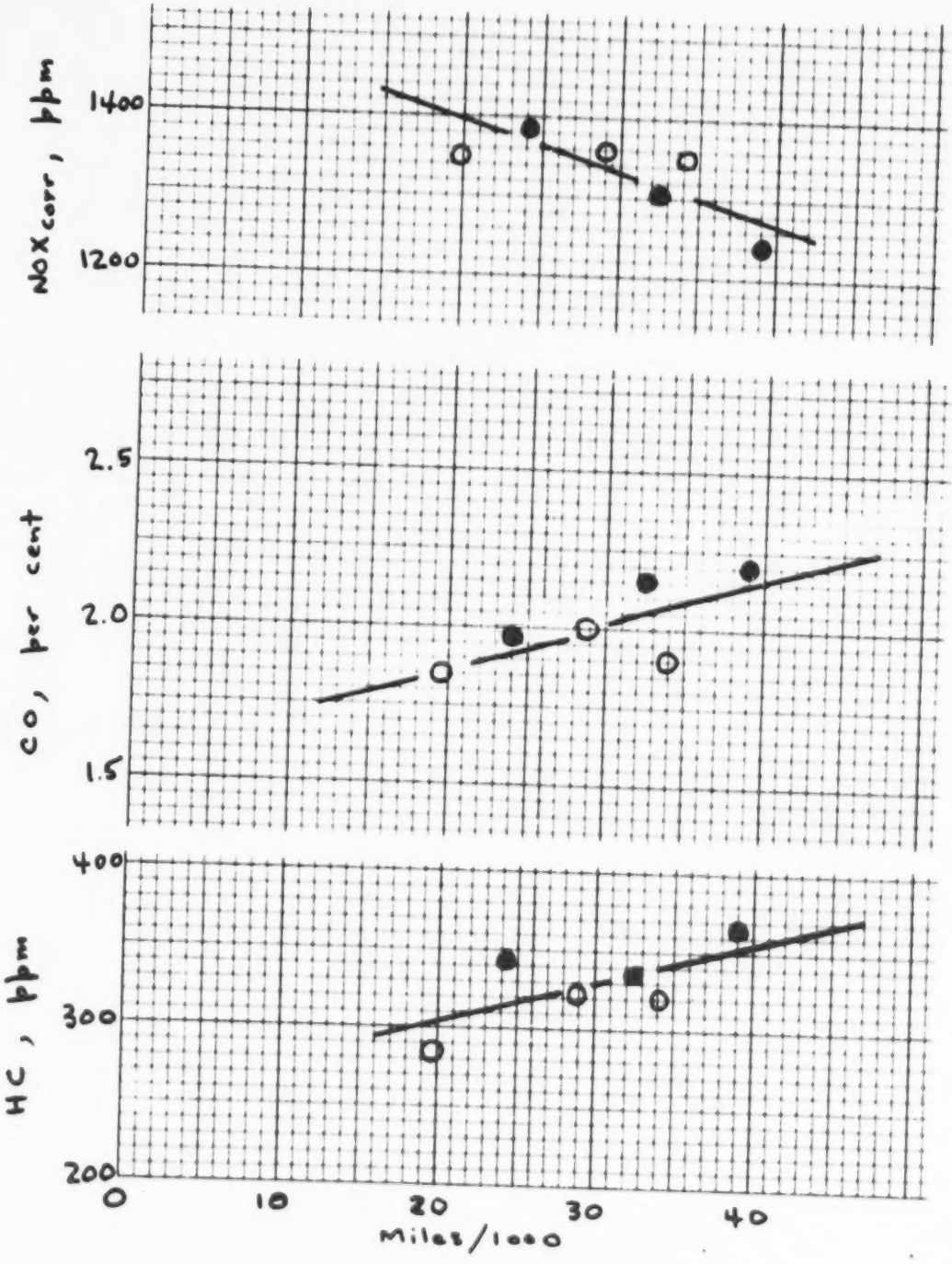
FIGURE 6-2

Seven - Mode Composite Data

For each phase, averaged over vehicle classes and plotted against average odometer reading for the phase

○ Kansas City

● Houston



74<

TABLE 6-12

CITY EFFECTS

Composite Data Averaged Over Phases And Classes
With And Without Odometer Mileage Adjustment

	Unadjusted	Adjusted[a]
HC, ppm		
Kansas City	309	312
Houston	348	341
Difference	39	29
CO, Percent		
Kansas City	1.91	1.93
Houston	2.11	2.07
Difference	0.20	0.14
NO_xC, ppm		
Kansas City	1354	1340
Houston	1313	1330
Difference	-41	-10

a. Based on the following coefficients per 1000 miles:

Kansas City: 1.294 ppm HC, 0.00951 percent CO, - 6.904 ppm NO_xC

Houston: 3.325 ppm HC, 0.01664 percent CO, - 8.609 ppm NO_xC

Adjusted to average of 4000 mile difference between Kansas City and Houston.

6.2.6 Differences Between Vehicle Classes

The variance analyses show that there is a large, highly significant difference between the emission levels for the various vehicle classes. This is also obvious from inspection of the means in Tables 6-13 to 6-15 and in the tables of Appendix E-2. The best estimates of the "class" levels are the values for the two cities averaged over the phases. The log-transform data have been used in the analysis below.

Many ways are possible for analyzing lists of group averages to see if one group average is different from the others in some sense. A preliminary plot of the 27 class averages for composite HC, ppm, for each city on log probability paper showed that both probability curves were very similar and that the curves were almost identical if four classes were excluded as outliers from the Houston set - these were not only unusually large, but were very different from the Kansas City values:

Class	Kansas City	Houston
G54 (Chevrolet 327 CID)	373	431
G56 (Chevrolet 396 CID)	284	393
V81 (VW 91 CID)	407	595
V82 (VW 97 CID)	289	384

TABLE 6-13

COMPOSITE HC, PPM
Averaged over the three phases[a]

Class	Kansas City	Houston	Average
A01	342	322	332
C11	273	307	289
C12	297	323	310
C13	309	300	304
C14	335	295	315
F31	262	292	276
F32	272	305	288
F33	369	362	365
F34	301	329	315
F35	271	268	269
F36	275	305	290
G51	297	273	285
G52	211	206	209
G53	386	395	391
G54	373	431	401
G55	299	307	303
G56	284	393	334
G61	236	263	249
G62	229	237	233
G63	296	338	316
G66	253	296	273
G67	230	226	228
G71	276	263	269
G72	251	245	248
G76	177	167	172
V81	407	595	492
V82	289	384	333

a. log transform data

77< TABLE 6-14

COMPOSITE CO, PER CENT
Averaged over the three phases[a]

Class	Kansas City	Houston	Average
A01	1.51	1.62	1.57
C11	1.54	1.99	1.75
C12	1.85	1.70	1.77
C13	1.90	1.72	1.81
C14	2.39	2.29	2.34
F31	1.48	1.08	1.27
F32	1.08	1.83	1.41
F33	1.21	1.37	1.29
F34	1.10	1.67	1.35
F35	1.34	1.46	1.40
F36	2.06	2.43	2.24
G51	1.98	1.52	1.73
G52	1.46	1.19	1.32
G53	1.81	1.77	1.79
G54	2.68	3.14	2.90
G55	2.04	1.95	1.99
G56	2.01	2.28	2.14
G61	1.44	1.57	1.51
G62	1.43	1.60	1.52
G63	1.99	2.50	2.23
G66	2.00	2.25	2.12
G67	1.68	1.84	1.76
G71	2.44	2.93	2.68
G72	2.04	1.98	2.01
G76	1.24	1.44	1.33
V81	1.99	2.41	2.19
V82	0.99	1.41	1.18

a. log-transform data

TABLE 6-15

COMPOSITE, NOxC, PPM
Averaged over the three phases[a]

Class	Kansas City	Houston	Average
A01	1514	1385	1448
C11	1685	1499	1589
C12	1431	1313	1370
C13	1363	1350	1357
C14	976	863	918
F31	1459	1936	1681
F32	1628	1108	1343
F33	1587	1765	1674
F34	1582	1331	1451
F35	1541	1186	1352
F36	981	835	905
G51	978	1206	1086
G52	1145	1158	1151
G53	1420	1427	1424
G54	783	685	732
G55	1417	1524	1469
G56	922	832	876
G61	1322	1550	1431
G62	1279	1242	1260
G63	1200	1056	1126
G66	1080	977	1027
G67	1030	986	1008
G71	1089	940	1012
G72	1260	1214	1237
G76	1338	1310	1324
V81	1318	1109	1209
V82	1146	959	1048

a. log-transform data

A ranking approach has value when data are closely distributed. Table 6-16 shows the 54 class-city means for composite HC ranked in order from smallest (G76, Cadillac 472 CID, Houston, 167 ppm) to largest (V81, VW 91 CID, Houston, 595 ppm). The lowest HC levels are dominated by GM classes. The closeness of the ranks for data from the two cities is good evidence of data validity for many vehicle classes. The classes can be ranked by averaging the ranks for the individual cities. For example, G62 (Pontiac 400 CID) has rank 6 for Kansas City (229 ppm) and 9 for Houston (237 ppm) - the combined score is 7.5. The difference of 3 shows that the cities are in good agreement. Table 6-17 gives the average rank scores for these HC data. Tables 6-18 to 6-21 present similar measures for CO and NO_xC. Finally, Table 6-22 puts all the information together. The parentheses indicate uncertain ranks - differences in rank between the cities of over 10 are considered doubtful. The ranking scores have been grouped very roughly into four types - low values, values below the median rank, values above the median rank, and high values. Only extreme values are worthly of interest since those in the iddle can not be separated in either a statistical or a practical sense.

A plot of the rankings in Table 6-22 - HC vs CO and NO_xC vs CO showed absolutely no relation at all.

80<

TABLE 6-16

CLASS MEANS RANKED IN ORDER

Composite HC, ppm
(log-transform data)

Serial No.	Class	City	Value	Serial No.	Class	City	Value
1	G76	H	167	28	G63	KC	296
2	G76	KC	177	29	C12	KC	297
3	G52	H	206	30	G51	KC	297
4	G52	KC	211	31	G55	KC	299
5	G67	H	226	32	C13	H	300
6	G62	KC	229	33	F34	KC	301
7	G67	KC	230	34	F36	H	305
8	G61	KC	236	35	F32	H	305
9	G62	H	237	36	G55	H	307
10	G72	H	245	37	C11	H	307
11	G72	KC	251	38	C13	KC	309
12	G66	KC	253	39	A01	H	322
13	F31	KC	262	40	C12	H	323
14	G71	H	263	41	F34	H	329
15	G61	H	263	42	C14	KC	335
16	F35	H	268	43	G63	H	338
17	F35	KC	271	44	A01	KC	342
18	F32	KC	272	45	F33	H	362
19	C11	KC	273	46	F33	KC	369
20	G51	H	273	47	G54	KC	373
21	F36	KC	275	48	V82	H	384
22	G71	KC	276	49	G53	KC	386
23	G56	KC	284	50	G56	H	393
24	V82	KC	289	51	G53	H	395
25	F31	H	292	52	V81	KC	407
26	C14	H	295	53	G54	H	431
27	G66	H	296	54	V81	H	595

TABLE 6-17

RANKING SCORES FOR VEHICLE CLASSES
based on log-transform composite HC[a]

Class	Kansas City	Houston	Average	Difference
A01	44	39	41.5	-5
C11	19	37	28.0	+18
C12	29	40	34.5	+11
C13	38	32	35.0	-6
C14	42	26	34.0	-16
F31	13	25	19.0	+12
F32	18	35	26.5	+17
F33	46	45	45.5	-1
F34	33	41	37.0	+8
F35	17	16	16.5	-1
F36	21	34	27.5	+13
G51	30	20	25.0	-10
G52	4	3	3.5	-1
G53	49	51	50.0	+2
G54	47	53	50.0	+6
G55	31	36	33.5	+5
G56	23	50	36.5	+27
G61	8	15	11.5	+7
G62	6	9	7.5	+3
G63	28	43	35.5	+15
G66	12	27	19.5	+15
G67	7	5	6.0	-2
G71	22	14	18.0	-8
G72	11	10	10.5	-1
G76	2	1	1.5	-1
V81	52	54	53.0	+2
V82	24	48	36.0	+24

a. Scores are ranks based on 1 for lowest HC, ppm to 54 for highest, in both Kansas City and Houston.

6-2<

TABLE 6-18

CLASS MEANS RANKED IN ORDER

Composite CO, per cent
(log-transform data)

Serial No.	Class	City	Value	Serial No.	Class	City	Value
1	V82	KC	0.99	28	G53	KC	1.81
2	F31	H	1.08	29	F32	H	1.83
3	F32	KC	1.08	30	G67	H	1.84
4	F34	KC	1.10	31	C12	KC	1.85
5	G52	H	1.19	32	C13	KC	1.90
6	F33	KC	1.21	33	G55	H	1.95
7	G76	KC	1.24	34	G51	KC	1.98
8	F35	KC	1.34	35	G72	H	1.98
9	F33	H	1.37	36	C11	H	1.99
10	V82	H	1.41	37	G63	KC	1.99
11	G62	KC	1.43	38	V81	KC	1.99
12	G61	KC	1.44	39	G66	KC	2.00
13	G76	H	1.44	40	G56	KC	2.01
14	F35	H	1.46	41	G55	KC	2.04
15	G52	KC	1.46	42	G71	KC	2.04
16	F31	KC	1.48	43	F36	KC	2.06
17	A01	KC	1.51	44	G66	H	2.25
18	G51	H	1.52	45	G56	H	2.28
19	C11	KC	1.54	46	C14	H	2.29
20	G61	H	1.57	47	C14	KC	2.39
21	G62	H	1.60	48	V81	H	2.41
22	A01	H	1.62	49	F36	H	2.43
23	F34	H	1.67	50	G71	KC	2.44
24	G67	KC	1.68	51	G63	H	2.50
25	C12	H	1.70	52	G54	KC	2.68
26	C13	H	1.72	53	G71	H	2.93
27	G53	H	1.77	54	G54	H	3.14

TABLE 6-19

RANKING SCORES FOR VEHICLE CLASSES
based on log-transform composite, CO, per cent

Class	Kansas City	Houston	Average	Difference
A01	17.0	22.0	19.5	+5.0
C11	19.0	37.0	28.0	+18.0
C12	31.0	25.0	28.0	-6.0
C13	32.0	26.0	29.0	-6.0
C14	47.0	46.0	46.5	-1.0
F31	16.0	2.5	9.3	-13.5
F32	2.5	29.0	15.8	+26.5
F33	6.0	9.0	7.5	+3.0
F34	4.0	23.0	13.5	+19.0
F35	8.0	14.5	11.3	+6.5
F36	43.0	49.0	46.0	+6.0
G51	34.5	18.0	26.3	-16.5
G52	14.5	5.0	9.8	-9.5
G53	28.0	27.0	27.5	-1.0
G54	52.0	54.0	53.0	+2.0
G55	41.5	33.0	37.3	-8.5
G56	40.0	45.0	42.5	+5.0
G61	12.5	20.0	16.3	+7.5
G62	11.0	21.0	16.0	+10.0
G63	37.0	51.0	44.0	+14.0
G66	39.0	44.0	41.5	+5.0
G67	24.0	30.0	27.0	+6.0
G71	50.0	53.0	51.5	+3.0
G72	41.5	34.5	38.0	-7.0
G76	7.0	12.5	9.8	+5.5
V81	37.0	48.0	42.5	+11.0
V82	1.0	10.0	5.5	+9.0

6-1<

TABLE 6-20

CLASS MEANS RANKED IN ORDER

Composite NOxC, ppm
(log-transform data)

Serial No.	Class	City	Value	Serial No.	Class	City	Value
1	G54	H	685	28	G72	KC	1260
2	G54	KC	783	29	G62	KC	1279
3	G56	H	832	30	G76	H	1310
4	F36	H	834	31	C12	H	1313
5	C14	H	863	32	V81	KC	1318
6	G56	KC	922	33	G61	KC	1322
7	G71	H	940	34	F34	H	1331
8	V82	H	959	35	G76	KC	1338
9	C14	KC	976	36	C13	H	1350
10	G66	H	977	37	C13	KC	1363
11	G51	KC	978	38	A01	H	1385
12	F36	KC	981	39	G55	KC	1417
13	G67	H	986	40	G53	KC	1420
14	G67	KC	1030	41	G53	H	1427
15	G63	H	1056	42	C12	KC	1431
16	G66	KC	1080	43	F31	KC	1459
17	G71	KC	1089	44	C11	H	1499
18	F32	H	1108	45	A01	KC	1514
19	V81	H	1109	46	G55	H	1524
20	G52	KC	1145	47	F35	KC	1541
21	V82	KC	1146	48	G61	H	1550
22	G52	H	1158	49	F34	KC	1582
23	F35	H	1186	50	F33	KC	1587
24	G63	KC	1200	51	F32	KC	1628
25	G51	H	1206	52	C11	KC	1685
26	G72	H	1214	53	F33	H	1765
27	G62	H	1242	54	F31	H	1936

85< TABLE 6-21

RANKING SCORES FOR VEHICLE CLASSES
based on log-transform NOxC, ppm

Class	Kansas City	Houston	Average	Difference
A01	45	38	41.5	-7
C11	52	44	48.0	-8
C12	42	31	36.5	-11
C13	37	36	36.5	-1
C14	9	5	7.0	-4
F31	43	54	48.5	+11
F32	51	18	34.5	-33
F33	50	53	51.5	+3
F34	49	34	41.5	-15
F35	47	23	35.0	-24
F36	12	4	8.0	-8
G51	11	25	18.0	+14
G52	20	22	21.0	+2
G53	40	41	40.5	+1
G54	2	1	1.5	-1
G55	39	46	42.5	+7
G56	6	3	4.5	-3
G61	33	48	40.5	+15
G62	27	29	28.0	+2
G63	24	15	19.5	-9
G66	16	10	13.0	-6
G67	14	13	13.5	-1
G71	17	7	12.0	-10
G72	28	26	27.0	-2
G76	35	30	32.5	-5
V81	32	19	25.5	-13
V82	21	8	14.5	-13

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TABLE 6-22

COMPOSITE DATA - RANKED
(log-transform data)

HC, ppm			CO, per cent			NOxC, ppm		
Rank	Class	Ave	Rank	Class	Ave	Rank	Class	Ave
1.5	G76	172	5.5	V82	1.18	1.5	G54	732
3.5	G52	209	7.5	F33	1.29	4.5	G56	876
6.0	G67	228	9.3	F31	1.27	7.0	C14	918
7.5	G62	233	9.8	G76	1.33	8.0	F36	905
10.5	G72	248	9.8	G52	1.32	12.0	G71	1012
11.5	G61	249				13.0	G66	1027
			11.3	F35	1.40	13.5	G67	1008
16.5	F35	269	(13.5)	F34	1.35	(14.5)	V82	1048
18.0	G71	269	(15.8)	F32	1.41			
(19.0)	F31	276	16.0	G62	1.52	(18.0)	G51	1086
(19.5)	G66	273	16.3	G61	1.51	19.5	G63	1126
25.0	G51	285	19.5	A01	1.57	21.0	G52	1151
(26.5)	F32	288				(25.5)	V81	1209
(27.5)	F36	290	(26.3)	G51	1.73	27.0	G72	1237
(28.0)	C11	289	27.0	G67	1.76	28.0	G62	1260
			27.5	G53	1.79			
33.5	G55	303	(28.0)	C11	1.75	32.5	G76	1324
(34.0)	C14	315	28.0	C12	1.77	(34.5)	F32	1343
(34.5)	C12	310	29.0	C13	1.81	(35.0)	F35	1352
35.0	C13	305				36.5	C13	1357
(35.5)	G63	316	37.3	G55	1.99	(36.5)	C12	1370
(36.0)	V82	333	38.0	G72	2.01			
(36.5)	G56	334	41.5	G66	2.12	40.5	G53	1424
37.0	F34	315	(42.5)	V81	2.19	(40.5)	G61	1431
41.5	A01	332	42.5	G56	2.14	41.5	A01	1448
			(44.0)	G63	2.23	(41.5)	F34	1451
45.5	F33	365	46.0	F36	2.24	42.5	G55	1469
50.0	G53	391	46.5	C14	2.34	48.0	C11	1589
50.0	G54	401	51.5	G71	2.68	(48.5)	F31	1681
53.0	V81	492	53.0	G54	2.90	51.5	F33	1674

Ranks are averages for the 54 city-class averages ranked smallest to largest

Averages above are for the combined cities.

Rank differences between cities over 10 are marked with a parenthesis.

In summary, there are big differences between emission levels for many individual vehicle classes but meaningful groupings can not be made. The extreme values are different from each other and the bulk of the data. The classes for the various manufacturers display no uniform pattern. Very few classes have low HC, CO, and NO_x.

6.3 MILEAGE ACCUMULATION ANALYSIS

The mileage accumulation analysis was performed on differences in mileage between odometer readings taken at Phase I and at Phase III, or at Phase I and Phase II if the car was not retrieved in Phase III.

Table 6-23 shows the average mileage per year and the standard deviation of the annual mileage for each displacement class and city combination. The total values for each city are also shown. The overall average mileage per year for all cars analyzed is 14915 with a standard deviation of 5860. The annual mileages for the two cities considered separately are almost the same. The values are slightly higher for the Phase I to Phase II differences:

	Average	Std. Dev.
Kansas City	15270	7782
Houston	15638	6961
Both Cities	15454	7377

The individual class means and standard deviations vary widely. The individual vehicle mileages in each class are very different from car to car, reflecting the driving habits of the owners. For example, Kansas City, Class F31 (Ford 6-cyl. 200 CID) with the largest standard deviation (8625) comprises nine (9) cars with mileages per year of 6200, 9100, 10000, 12700, 15500, 17900, 22000, 23800, and 33500.

No particular vehicle class appears to have an abnormally low or high mileage accumulation or to be more or less variable than the others.

A complete listing of the basic data and individual class statistics for the mileage accumulations appears in Appendix F.

TABLE 6-23

89< AVERAGE MILEAGE PER YEAR

Class	Kansas City		Houston	
	Mean	Std. Dev.	Mean	Std. Dev.
A 1	11263	5931	14389	4077
C11	15531	5322	12643	6318
C12	17305	4993	18068	7420
C13	18256	6785	17276	5661
C14	17141	6457	12980	5285
F31	16745	8625	12827	4668
F32	16378	3336	19008	6676
F33	17635	6201	17406	5249
F34	16981	7884	13408	4417
F35	15756	4668	16700	5165
F36	11444	4160	13719	3555
G51	16893	3869	15161	7618
G52	13046	6117	15579	6143
G53	13292	4146	15009	4376
G54	13002	7099	14512	4249
G55	14706	5559	16895	7410
G56	13127	2635	14628	5125
G61	12747	4216	11675	4493
G62	12813	4146	16267	3858
G63	15541	5895	17994	6771
G66	12478	6136	14064	6927
G67	17158	6475	17661	5606
G71	11104	2898	14446	4303
G72	18207	6851	10199	5132
G76	16340	7508	12900	7015
V81	10598	4771	148[illegible]	5603
V82	16431	6508	9374	6621
Total	14941	5909	14890	5822
Both Cities			14915	5860

6.4 EFFECT OF MILEAGE ON EMISSION LEVEL

6.4.1 Unweighted Mileage Regressions

6.4.1.1 General Conclusions

in general, a small but definite effect of mileage on emission level was found for both cities, separately and combined. The table below shows the average percentage change in emittant level per 1000 miles with all data obtained considered as a single data set. The percentages are based on the overall average emission levels.

	Concentration	Mass
HC	0.75	0.75
CO	0.70	0.76
NO_x	-0.65	-0.56
NO_xC	-0.49	-0.41

All results have very high statistical significance. Note that the directions of change of HC, CO, and NO_x are those expected, since in general an increase in CO (that is, a decrease in air-fuel ratio) leads to higher HC and lower NO_x.

When the classes are considered one-by-one, the mileage regression slopes are mostly not statistically significant, with F-values below the 5 percent point. For the 54 city-class combinations, 45 are not significant for HC, 41 for CO,

and 33 for NO_x, a total of 119 or 73 percent. The picture is complicated by cases where a mileage effect is noted in one city but not the other. Despite these statistically insignificant effects, 85 percent of the 1962 cases for the three emittants show trends in the same direction as the overall effect mentioned above -- many little effects in the same direction reinforce each other. Details of the analysis are considered at greater length below.

6.4.1.2 Linear Least Squares Analysis

The effect of mileage on emission level was evaluated by fitting straight lines by the method of least squares to the seven-mode composite concentration and mass data for HC, CO, NO_x, and NO_x corrected for humidity. Replicates were ignored. Cold start test data points were combined for the three phases using the following groupings:

- Kansas City, each vehicle class
- Houston, each vehicle class
- Both cities, each vehicle class
- Kansas City, all vehicles
- Houston, all vehicles
- Both cities, all vehicles

The 84 results for the eight emittant variables are shown in Appendix G-1. The output for each group includes, in order:

- Class designation (if applicable)
- Variable name
- Mean of mileage and emission variable
- Standard deviations of mileage and emittant about their means
- Least squares estimates of slopes and intercept of straight line
- Standard error of fit about the line
- Correlation coefficient squared, i.e. fraction of variability "explained by" mileage
- Correlation coefficient
- F-value for normal theory test of a significant slope
- Degrees of freedom for F-test

Note that the number of data points in each group is two more than the number of degrees of freedom for the error term. For this size of group the close approximations for the F-test probability levels of F = 4 for the 5 percent point and F = 7 for the 1 percent point can be used. (In some tables below, F-values exceeding the tabulated 5 percent and 1 percent points are marked with a single and double asterisk, respectively. The F-values have been given the same sign as the slope.)

The F-values for HC, CO, and NO_x corrected have been collected in Tables 6-24 to 6-28 for easier reference. Since the F-values for mass data usually agree with

concentration data, the discussion below is based on concentration data only. Table 6-29 shows that for the 162 city-class-emittant combinations, 119 (73 percent) do not show a statistically significant mileage effect, 22 (14 percent) show a significant effect and 21 (13 percent) show a pronounced effect.

The overall effect of mileage is shown on Table 6-30. Here the data on all cars in both cities are considered as a single set. The slopes are of the best straight line for each emittant which passes among the data points regardless of city or class. The results have very high statistical significance since the F-values exceed 50 (corresponding to t-values of over 7), with about 2000 degrees of freedom indicating that there is only a minute probability that these overall mileage effects could have arisen by chance. This conclusion may seem at variance with the fact that many of the individual classes do not have statistically significant effects but note that most of the signs of the slopes are the same for each emittant, significant or not. All of the small effects in the same direction reinforce the general thrust of the data.

TABLE 6-24

F-VALUES FOR EFFECT OF MILEAGE
ON EMISSION LEVEL

Composite HC

Class No.	Class Mfgr. Code	Concentration Data KC + H	Concentration Data KC	Concentration Data H	Mass, Data KC + H	Mass, Data KC	Mass, Data H
1	A01	1.00	2.54	0.20	0.08	1.63	-0.01
2	C11	18.52**	-0.05	25.90**	21.05**	0.05	26.37**
3	C12	1.85	2.28	0.83	1.55	0.54	0.86
4	C13	-0.01	0.00	-0.00	-0.00	0.00	0.09
5	C14	1.51	2.72	0.06	1.09	2.40	-0.00
6	F31	4.64*	0.05	3.73	5.23*	0.37	3.89
7	F32	4.56*	0.44	3.23	3.82	0.73	2.25
8	F33	-0.06	-0.37	0.69	0.01	-0.24	0.85
9	F34	0.03	3.40	-1.65	0.14	2.78	-1.24
10	F35	0.22	2.26	-0.13	0.08	1.60	-0.21
11	F36	2.74	0.85	1.30	2.86	1.18	1.27
12	G51	0.00	-0.06	1.87	-0.01	-0.19	1.82
13	G52	0.03	-0.00	0.05	0.01	0.00	0.04
14	G53	41.60**	2.50	54.83**	43.48**	2.81	59.73**
15	G54	0.57	-0.01	0.12	0.35	-0.00	0.04
16	G55	1.36	-0.34	2.68	1.47	-0.29	2.97
17	G56	1.91	-1.21	1.26	1.96	-0.69	1.28
18	G61	-7.36**	-6.61*	-3.32	-7.58**	-6.93*	-3.28
19	G62	-2.13	-0.26	-4.00	-3.52	-0.70	-4.94*
20	G63	-0.52	-0.25	-3.01	-0.35	-0.26	-2.45
21	G66	3.03	0.40	1.05	3.72	0.69	1.54
22	G67	7.52**	3.77	3.96	7.45**	3.73	3.94
23	G71	19.25**	33.61**	-0.03	17.17**	33.26*	0.05
24	G72	1.97	0.86	0.71	1.95	0.84	0.70
25	G76	18.98**	1.06	19.76**	18.82**	1.03	19.73**
26	V81	20.73**	16.12**	9.78**	20.45**	16.50**	9.56**
27	V82	23.69**	4.69*	23.63**	22.29**	3.79	23.65**
Total Vehicles:		50.69**	11.42*	31.84**	54.47**	14.13**	34.09**

* beyond 5% point

** beyond 1% slope

\- negative slope

TABLE 6-25

F-VALUES FOR EFFECT OF MILEAGE
ON EMISSION LEVEL

Composite CO

Class		Concentration Data			Mass, Data		
No.	Mfgr. Code	KC + H	KC	H	KC + H	KC	H
1	A01	1.23	7.24*	-0.40	0.45	7.29*	-1.31
2	C11	7.83**	-0.36	9.45**	7.78**	-0.06	8.05**
3	C12	1.88	2.77	0.49	1.24	0.83	0.51
4	C13	0.00	0.06	0.00	0.05	0.09	0.08
5	C14	2.02	0.76	1.19	1.57	0.60	0.82
6	F31	-0.11	0.01	-0.03	-0.05	0.04	-0.01
7	F32	12.69**	4.85*	5.71*	12.27**	6.08*	4.87*
8	F33	0.19	-2.70	3.71	0.55	-1.74	4.18*
9	F34	7.21**	2.80	2.76	7.82**	2.74	3.38
10	F35	0.19	-0.01	0.16	0.03	-0.06	0.05
11	F36	17.89**	4.62*	10.81**	18.35**	4.81*	11.18**
12	G51	4.71*	3.10	5.31*	4.12*	2.18	5.29*
13	G52	1.55	-1.77	0.10	-1.70	-1.53	0.08
14	G53	2.93	2.13	1.23	4.87*	3.03	2.55
15	G54	0.07	1.54	-2.09	0.02	1.64	-2.52
16	G55	0.26	-0.99	5.00*	0.30	-1.11	5.68*
17	G56	1.48	-0.28	1.86	1.51	-0.15	1.86
18	G61	0.37	-0.00	0.58	0.17	-0.05	0.35
19	G62	0.03	0.10	-0.13	0.04	0.00	0.32
20	G63	9.24**	0.00	6.53*	9.64**	0.00	7.06*
21	G66	0.17	-1.31	0.72	0.34	-1.09	1.35
22	G67	8.27**	2.52	6.99*	8.24**	2.51	6.97*
23	G71	9.59**	13.26**	0.01	9.30**	13.19**	0.00
24	G72	0.33	-0.07	1.23	0.33	-0.08	1.25
25	G76	33.50**	2.41	62.13**	33.38**	2.37	62.06**
26	V81	7.89**	6.27*	2.59	7.36**	6.10*	2.35
27	V82	3.46	0.80	2.94	3.31	0.65	2.94
Total Vehicles:		71.53**	17.71**	46.97**	76.67**	20.73**	50.88**

* beyond 5% point

** beyond 1% point

\- negative slope

95<

TABLE 6-26

F-VALUES FOR EFFECT OF MILEAGE
ON EMISSION LEVEL

Composite NOx

Class		Concentration Data			Mass, Data		
No.	Mfgr. Code	KC + H	KC	H	KC + H	KC	H
1	A01	-14.86**	-16.52**	-0.46	-19.86**	-15.75**	-2.25
2	C11	-7.11*	-0.02	-6.54*	-5.98*	0.01	-6.10*
3	C12	-8.55**	-12.19**	-0.99	-8.98**	-15.72**	-0.72
4	C13	-0.18	0.55	-0.42	-0.07	0.50	-0.05
5	C14	-8.27**	-5.52*	-1.09	-7.92**	-4.71*	-1.36
6	F31	0.00	1.40	-1.83	0.08	1.90	-1.21
7	F32	-14.45**	-4.21*	-8.96**	-12.55**	-2.91	-8.91**
8	F33	-18.02**	-12.23**	-5.38*	-12.39**	-8.03**	-3.93
9	F34	-2.20	-0.02	-1.09	-1.92	-0.10	-0.83
10	F35	-2.80	-0.00	-0.37	-3.60	-0.06	-0.59
11	F36	-24.38**	-8.07**	-13.55**	-22.98**	-7.33**	-12.95**
12	G51	-3.36	-2.86	-1.56	-3.82	-3.96	-1.56
13	G52	-2.81	0.86	-5.95*	-2.92	1.04	-6.19*
14	G53	-3.17	-2.60	-0.66	-1.25	-1.04	-0.11
15	G54	-2.34	-4.84*	4.02*	-2.32	-4.45*	4.21*
16	G55	-0.37	2.77	-2.28	-0.28	2.83	-1.58
17	G56	-9.58**	-4.55*	-3.69	-9.06**	-3.48	-4.37*
18	G61	-4.86*	-0.74	-4.74*	-5.62*	-0.96	-6.96*
19	G62	-9.69**	-8.19**	-3.00	-10.89**	-9.67**	-2.14
20	G63	-9.00**	-0.49	-4.15*	-7.90**	-0.40	-3.73
21	G66	-5.69*	-3.58	-0.47	-4.71*	-2.59	-0.00
22	G67	-18.31**	-4.85*	-17.75**	-18.33**	-4.85*	-19.59
23	G71	-14.77**	-9.39**	-0.63	-15.34**	-9.49**	-0.61
24	G72	0.16	1.28	-10.56**	0.16	1.28	-9.70**
25	G76	-5.66*	-2.33	-9.51**	-5.67*	-2.34	-10.01**
26	V81	-19.04**	-8.65**	-5.90*	-20.86**	-8.79**	-5.19*
27	V82	-7.07**	-3.91	-5.42*	-7.53**	-4.77*	-6.80*
Total Vehicles:		-126.23**	-37.32**	-60.99**	-87.00**	-19.27**	-46.60**

* beyond 5% point

** beyond 1% point

\- negative slope

97<

TABLE 6-27

F-VALUES FOR EFFECT OF MILEAGE
ON EMISSION LEVEL

Composite NOxC

Class No.	Mfgr. Code	Concentration Data KC + H	Concentration Data KC	Concentration Data H	Mass, Data KC + H	Mass, Data KC	Mass, Data H
1	A01	-8.53**	-11.62**	-0.55	-12.90**	-10.72**	-2.49
2	C11	-4.67*	0.08	-6.27*	-3.70	0.29	-5.69*
3	C12	-5.35*	-8.00**	-0.75	-5.60*	-10.78**	-0.52
4	C13	0.30	1.29	-0.09	0.56	1.22	0.04
5	C14	-4.41*	-3.27	-0.79	-4.29*	-2.71	-1.03
6	F31	0.17	1.61	-1.22	0.36	2.21	0.82
7	F32	-9.74**	-0.90	-8.22**	-8.56**	-0.52	-8.15*
8	F33	-10.42**	-8.27**	-4.09	-6.31*	-4.86*	-2.74
9	F34	-0.68	0.16	-0.94	-0.53	0.03	-0.68
10	F35	-1.86	-0.07	-0.19	-2.63	-0.21	-0.35
11	F36	-18.77**	-4.54*	-14.80**	-17.45**	-3.92	-14.15*
12	G51	-0.57	-1.68	-1.21	-0.74	-2.66	-1.20
13	G52	-2.36	0.53	-7.93**	-2.54	0.71	-8.17*
14	G53	-0.71	-0.79	-0.18	-0.06	-0.15	0.00
15	G54	-1.35	-5.00*	4.30*	-1.37	-4.61*	4.21*
16	G55	0.01	2.69	-1.87	0.02	2.79	-1.58
17	G56	-6.01*	-1.63	-4.33*	-5.63*	-1.03	-4.37*
18	G61	-2.79	-0.34	-6.02*	-3.21	-0.47	-6.96*
19	G62	-6.31*	-7.93**	-2.09	-7.18**	-9.04**	-2.14
20	G63	-3.54	-0.12	-4.18*	-2.96	-0.08	-3.73
21	G66	-1.43	-1.27	-0.14	-0.94	-0.80	-0.00
22	G67	-12.09**	-1.41	-19.65**	-11.95**	-1.36	-19.59*
23	G71	-9.21**	-6.90*	-0.55	-9.99**	-6.89*	-0.61
24	G72	-0.02	1.83	-9.71**	-0.02	1.85	-9.70*
25	G76	-7.16**	-0.91	-10.07**	-7.08**	-0.89	-10.01*
26	V81	-11.09**	-6.71*	-4.44*	-12.60**	-6.88*	-5.19*
27	V82	-7.73**	-2.94	-6.89*	-8.03**	-3.61	-6.80*
Total Vehicles:		-75.44**	-22.12**	-52.10**	-46.56**	-19.27**	-38.90*

* beyond 5% point

** beyond 1% point

\- negative slope

98<

TABLE 6-28

F-VALUES FOR MILEAGE EFFECT
Concentration Basis

Class No.	Mfgr. Code	HC KC	HC H	CO KC	CO H	NOxC KC	NOxC H
1	A01	2.54	0.20	7.24*	-0.40	-11.62**	-0.55
2	C11	-0.05	25.90**	-0.36	9.45**	0.08	-6.27*
3	C12	2.28	0.83	2.77	0.49	-8.00**	-0.75
4	C13	0.00	-0.00	0.06	0.00	1.29	-0.09
5	C14	2.72	0.06	0.76	1.19	-3.27	-0.79
6	F31	0.05	3.73	0.01	-0.03	1.61	-1.22
7	F32	0.44	3.23	4.85*	5.71*	-0.90	-8.22**
8	F33	-0.37	0.69	-2.70	3.71	-8.27**	-4.09
9	F34	3.40	-1.65	2.80	2.76	0.16	-0.94
10	F35	2.26	-0.13	-0.01	0.16	-0.07	-0.19
11	F36	0.85	1.30	4.62*	10.81**	-4.54*	-14.80**
12	G51	-0.06	1.87	3.10	5.31*	-1.68	-1.21
13	G52	-0.00	0.05	-1.77	0.10	0.53	-7.93**
14	G53	2.50	54.83**	2.13	1.23	-0.79	-0.18
15	G54	-0.01	0.12	1.54	-2.09	-5.00*	4.30*
16	G55	-0.34	2.68	-0.99	5.00*	2.69	-1.87
17	G56	-1.21	1.26	-0.28	1.86	-1.63	-4.33*
18	G61	-6.61*	-3.32	-0.00	0.58	-0.34	-6.02*
19	G62	-0.26	-4.00	0.10	-0.13	-7.93**	-2.09
20	G63	-0.25	-3.01	0.00	6.53*	-0.12	-4.18*
21	G66	0.40	1.05	-1.31	0.72	-1.27	-0.14
22	G67	3.77	3.96	2.52	6.99*	-1.41	-19.65**
23	G71	33.61**	-0.03	13.26**	0.01	-6.90*	-0.55
24	G72	0.86	0.71	-0.07	1.23	1.83	-9.71**
25	G76	1.06	19.76**	2.41	62.13**	-0.91	-10.07**
26	V81	16.12**	9.78**	6.27*	2.59	-6.71*	-4.44*
27	V82	4.69*	23.63**	0.80	2.94	-2.94	-6.89*
Total Vehicles:		11.42*	31.84**	17.71**	46.97**	-22.12**	-52.10**

* beyond 5% point

** beyond 1% point

\- negative slope

TABLE 6-29

NUMBER OF VEHICLE CLASSES SHOWING
SIGNIFICANT MILEAGE EFFECTS

Emittant	Kansas City			Houston		
	Not sign.	Beyond 5%	Beyond 1%	Not sign.	Beyond 5%	Beyond 1%
HC	23	2	2	22	0	5
CO	22	4	1	19	5	3
NOx (corr.)	19	4	4	14	7	6
Total	64	10	7	55	12	14

TABLE 6-30

EFFECT OF MILEAGE ON EMISSION LEVELS
All Data as a Single Data Set

Emittant Variable	Average Mileage	Average Level	Slope[a]		F-Value[d]
			Abs.Value[b]	Percentage[c]	
Composite, concentration units					
HC	28321	326	2.49	0.75	50.69
CO	28321	1.99	0.0139	0.70	71.53
NO_x	28395	1377	-8.93	-0.65	126.23
NO_xC	28395	1345	-6.62	-0.49	75.44
Composite, mass units g/mile					
HC	28321	3.86	0.0290	0.75	54.47
CO	28321	45.39	0.347	0.76	76.67
NO_x	28395	5.09	-0.0286	-0.56	87.00
NO_xC	28395	4.97	-0.0201	-0.41	46.56

a. Slope shown is change in emission level per 1,000 miles.

b. The full linear relations are given in Appendix G-1, for example:

HC ppm = 255.04 + 2.49 (Miles/1000)

c. Percentage of average level per 1,000 miles, based on the average values shown.

d. F-values are based on 2024, 2027, and 1966 error degrees of freedom for HC, CO, and NOx respectively. These F-values are far beyond the 0.000001 percent point.

6.4.1.3 Mileage Effects for Individual Classes

Genuine mileage effects for individual classes may be masked by the large spread of the data. In addition, some of the results may be misleading since the statistical calculations were made on the assumption that all data points are equally valid and that each data grouping is representative of a single "population" of cars of that class measured in that city. Since this population includes cars that needed tuning and even cars with such severe misfiring that they ran very poorly, it is well to question whether these results answer more fundamental questions. In other words, does the "statistical significance" of the mileage effect represent a true change in the emittant level as the car ages or are we being misled by mixing well functioning vehicles with high emitters caused by misfiring, etc.? In statistical terms, are we sampling one population or not? There is little doubt that the presence of one or two "bad" points in some groups will change the statistical conclusions drastically. If a mileage effect really exists for a class of cars we would expect similar results in the two cities provided that maintenance practices in both places are about the same. If we exclude the Volkswagen data, the five largest F-values for the HC data are each for one city only, with the F-value for the other city very small.

There are only four classes which show significant F-values for all three emittants (Table 6-28) - C11, Plymouth 225 CID; G71, Buick 350 CID; G76, Cadillac 472 CID; and V81, VW 91 CID. These mileage effects are only evident in one of the two cities. Class G53, Chevrolet 307 CID, is an extreme case with a very large mileage effect for HC in Houston with all other city-emittant combinations with low F-values; no reason was apparent.

Only six of the 81 class-emittant combinations (27 classes x 3 emittants - excluding NOxC) have statistically significant mileage effects for both cities:

CO	F32	Ford Maverick, 6-cyl., 200 CID
CO and NO_x	F36	Ford and Mercury, 8-cyl., 429 CID
HC and NO_x	V81	Volkswagen, 4-cyl., 91 CID
HC	V82	Volkswagen, 4-cyl., 97 CID

Class G54 (Chevrolet, 327 CID) shows a significant mileage effect for both cities for NO_x, but Kansas City shows the expected decrease with mileage (F = -5.00) and Houston is in the opposite direction (F = 4.30) with about the same magnitude. Plots of the data showed that the points are scattered. Despite the statistical "significance" the trends are not at all obvious on the plots. In both cases the standard error of fit about the line is less than 5 percent smaller than the standard deviation, hardly a meaningful reduction.

Plots and detailed discussions are given in Appendix G-1.2 for the following classes. In most cases, effluents HC, CO and NO_x are considered together.

G-1.2.1	C11	Dodges and Plymouths, 6-cyl., 225 CID
G-1.2.2	G53	Chevrolet, 8-cyl., 307 CID
G-1.2.3	G54	Chevrolet, 8-cyl., 327 CID
G-1.2.4	G61	Pontiac, 8-cyl., 350 CID
G-1.2.5	G71	Buick, 8-cyl., 350 CID
G-1.2.6	G76	Cadillac, 8-cyl., 472 CID
G-1.2.7	V81, V82	Volkswagen, 4-cyl., 91 or 97 CID

The generality was evident that as CO level increases, HC increases and NOx decreases. Also misfiring may give extra high values of HC but have little effect on CO. Sometimes the plots could be interpreted easily but in most cases the existence of a possible trend could not be evaluated because of the variability of the data.

6.4.2 Weighted Mileage Regressions

The weighted mileage regression data discussed in this section show that three is a small but definite effect of mileage on emission level which is usually less than 1 percent per 1,000 miles. Table 6-31 summarizes these results for car manufacturers, for car makes and for the car population as a whole. The numbers shown have a considerable uncertainty but confirm the general trends noted in the section on the unweighted mileage regressions.

Weighting factors corresponding to the percentage of the number of cars of a particular class in the national car population were derived by Automotive Environmental Systems, Inc., an Olson Laboratories, Inc. subcontractor. For example, class C12, has a weighting factor of 9.03 since these 318 CID Dodges and Plymouths are estimated to comprise 9.03 percent of the car population

The mileage regression results for the individual vehicle classes can be considered to be estimates of results for the corresponding population of these particular kinds of cars as used by the public. (These unweighted regression results were discussed in the previous section.) Estimates by car manufacturers and by makes can be made by taking weighted averages of the results for the classes. The weighted mileage regression equations are given in Appendix G-2 for the following groupings of cars using results from both cities: car manufacturers, car makes, and all classes. The tables in the Appendix show the class identification, the weighting factor, and the intercept and slope of the equation for each grouping. (The slopes are for each million miles, 1,000 times the usual regression coefficients.) Direct comparison of these results on a percentage basis can be made by dividing each slope by the calculated value from the weighted regression equation at a suitable central value of the mileage, the same for all groupings. The value chosen

was 28,000 miles, close to the unweighted grand average of all the data. Tables 6-32 to 6-39 present the weighted mileage equations for the eight emission variables and include the emission value at 28,000 miles, the intercept (or emission level extrapolated back to zero miles), and the slope, both as the change in emission level per 1,000 miles and as a percentage of the value at 28,000 miles.

These weighted equations are derived from the unweighted results for the individual classes. Many of the class slopes are not statistically different from zero, but the majority of the slopes have consistent signs for HC, CO and NOx so that the overall conclusion that there is an overall mileage effect is not surprising. The same type of mileage effect - increase in HC and CO with decrease in NOx - is evident for the weighted regressions as for the unweighted results. In general small increases of the order of less than 1 percent per 1,000 miles were found (Table 6-31).

TABLE 6-31

PERCENTAGE CHANGES IN EMISSION LEVEL PER 1000 MILES

From Weighted Regressions[a]

Mfgr. or Make	Relative Weight	Concentration Data				Mass Data			
		HC	CO	NOX	NOX_c	HC	CO	NOX	NOX_c
Amer	1.54	0.36	0.57	-1.21	-0.89	0.09	0.33	-1.54	-1.22
Chrysler	18.68	0.61	0.41	-0.46	-0.31	0.52	0.35	-0.46	-0.31
Ford	20.45	0.19	0.87	-0.69	-0.49	0.23	0.89	-0.66	-0.46
Gen Motors	51.87	0.60	0.43	-0.55	-0.39	0.59	0.44	-0.56	-0.39
Volkswagen	7.46	2.83	1.21	-1.02	-0.83	2.78	1.16	-1.09	-0.89
	100.00	0.78	0.57	-0.61	-0.44	0.64	0.53	-0.60	-0.38
Chev	22.77	0.77	0.21	-0.41	-0.23	0.77	0.21	-0.38	-0.18
Pontiac	9.83	-0.38	0.34	-0.72	-0.55	-0.43	0.28	-0.78	-0.60
Olds	7.98	0.83	0.94	-0.99	-0.70	0.87	0.99	-0.98	-0.68
Buick	8.46	0.72	0.50	-0.33	-0.30	0.71	0.47	-0.42	-0.38
Cad	2.83	1.21	1.30	-0.36	-0.45	1.20	1.29	-0.46	-0.45
Gen Motors	51.87	0.60	0.43	-0.55	-0.39	0.59	0.44	-0.56	-0.39

a. Details are given in Tables 6-32 to 6-35.

TABLE 6-32

WEIGHTED MILEAGE REGRESSIONS
Composite HC, Percent

	Value at 28000 Miles[b]	Intercept	Slope[a] Value	Slope[a] Percentage[c]
American Motors	352	315.8	1.28	0.36
Chrysler	332	275.7	2.03	0.61
Ford	337	319.0	0.64	0.19
Gen Motors	300	250.2	1.79	0.60
Chevrolet	362	284.2	2.78	0.77
Pontiac	258	285.5	-0.98	-0.38
Oldsmobile	264	202.7	2.20	0.83
Buick	257	205.7	1.84	0.72
Cadillac	181	120.6	2.19	1.21
Volkswagen	536	111.7	15.15	2.83
Total	332	259.7	2.59	0.78

a. Slope per 1000 miles

b. Calculated value from linear relation at 28000 miles

c. Percentage based on calculated value at 28000 miles

TABLE 6-33

WEIGHTED MILEAGE REGRESSIONS
Composite CO, Percent

	Value at 28000 Miles[b]	Intercept	Slope[a] Value	Slope[a] Percentage[c]
American Motors	1.85	1.551	0.0105	0.57
Chrysler	2.01	1.776	0.0082	0.41
Ford	1.67	1.261	0.0146	0.87
Gen Motors	2.14	1.882	0.0093	0.43
Chevrolet	2.29	2.156	0.0047	0.21
Pontiac	1.74	1.575	0.0059	0.34
Oldsmobile	2.14	1.578	0.0202	0.94
Buick	2.46	2.118	0.0122	0.50
Cadillac	1.39	0.890	0.0180	1.30
Volkswagen	2.18	1.439	0.0264	1.21
Total	2.02	1.697	0.0115	0.57

a. Slope per 1000 miles

b. Calculated value from linear relation at 28000 miles

c. Percentage based on calculated value at 28000 miles

TABLE 6-34

WEIGHTED MILEAGE REGRESSIONS
Composite NOX, ppm

	Value at 28000 Miles[b]	Intercept	Slope[a] Value	Slope[a] Percentage[c]
American Motors	1519	2035	-18.44	-1.21
Chrysler	1534	1729	- 7.00	-0.46
Ford	1562	1864	-10.81	-0.69
Gen Motors	1290	1490	- 7.15	-0.55
Chevrolet	1308	1456	-5.31	-0.41
Pontiac	1390	1670	-10.00	-0.72
Oldsmobile	1150	1470	-11.44	-0.99
Buick	1498	1359	-4.97	-0.33
Cadillac	1770	1590	-6.42	-0.36
Volkswagen	1338	1721	-13.69	-1.02
Total	1398	1637	- 8.53	-0.61

a. Slope per 1000 miles

b. Calculated value from linear relation at 28000 miles

c. Percentage based on calculated value at 28000 miles

TABLE 6-35

WEIGHTED MILEAGE REGRESSIONS
Composite, NOX_C, ppm

	Value at 28000 Miles[b]	Intercept	Slope[a] Value	Slope[a] Percentage[c]
American Motors	1502	1875	-13.32	-0.89
Chrysler	1486	1615	- 4.59	-0.31
Ford	1538	1750	- 7.56	-0.49
Gen Motors	1260	1398	- 4.94	-0.39
Chevrolet	1279	1360	-2.89	-0.23
Pontiac	1350	1558	-7.45	-0.55
Oldsmobile	1130	1351	-7.90	-0.70
Buick	1424	1304	-4.27	-0.30
Cadillac	1394	1571	-6.31	-0.45
Volkswagen	1302	1602	-10.76	-0.83
Total	1366	1533	- 5.97	-0.44

a. Slope per 1000 miles

b. Calculated value from linear relation at 28000 miles

c. Percentage based on calculated value at 28000 miles

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TABLE 6-36

WEIGHTED MILEAGE REGRESSIONS
Composite HC, gm/mile

	Value at 28000 miles[b]	Intercept	Slope[a]	
			Value	Percentage[c]
American Motors	3.51	3.42	0.0033	0.09
Chrysler	4.09	3.49	0.0211	0.52
Ford	4.11	3.84	0.0096	0.23
Gen Motors	3.88	3.23	0.0229	0.59
Chevrolet	4.54	3.57	0.0348	0.77
Pontiac	3.38	3.78	-0.0144	-0.43
Oldsmobile	3.47	2.63	0.0301	0.87
Buick	3.47	2.78	0.0245	0.71
Cadillac	2.62	1.74	0.0314	1.20
Volkswagen	3.62	0.80	0.1007	2.78
Total	3.94	3.23	0.0254	0.64

a. Slope per 1,000 miles

b. Calculated value from linear relation at 28,000 miles

c. Percentage based on calculated value at 28,000 miles

TABLE 6-37

WEIGHTED MILEAGE REGRESSIONS
Composite CO, gm/mile

	Value at 28000 miles[b]	Intercept	Slope[a] Value	Slope[a] Percentage[c]
American Motors	34.61	31.40	0.1143	0.33
Chrysler	46.35	41.80	0.1623	0.35
Ford	38.35	28.74	0.3430	0.89
Gen Motors	52.15	45.77	0.2279	0.44
Chevrolet	54.00	50.85	0.1124	0.21
Pontiac	42.77	39.39	0.1209	0.28
Oldsmobile	52.99	38.28	0.5252	0.99
Buick	62.12	53.81	0.2968	0.47
Cadillac	37.67	24.11	0.4843	1.29
Volkswagen	27.70	18.72	0.3208	1.16
Total	46.15	39.31	0.2444	0.53

a. Slope per 1,000 miles

b. Calculated value from linear relation at 28,000 miles

c. Percentage based on calculated value at 28,000 miles

TABLE 6-38

WEIGHTED MILEAGE REGRESSIONS
Composite NO_x, gm/mile

	Value at 28000 miles[b]	Intercept	Slope[a] Value	Slope[a] Percentage[c]
American Motors	4.77	6.82	-0.0736	-1.54
Chrysler	5.78	6.53	-0.0268	-0.46
Ford	5.81	6.88	-0.0383	-0.66
Gen Motors	5.15	5.95	-0.0286	-0.56
Chevrolet	5.03	5.55	-0.0189	-0.38
Pontiac	5.57	6.79	-0.0434	-0.78
Oldsmobile	4.67	5.95	-0.0459	-0.98
Buick	5.06	5.65	-0.0213	-0.42
Cadillac	6.23	7.03	-0.0284	-0.46
Volkswagen	2.84	3.71	-0.0309	-1.09
Total	5.22	6.09	-0.0311	-0.60

a. Slope per 1,000 miles

b. Calculated value from linear relation at 28,000 miles

c. Percentage based on calculated value at 28,000 miles

TABLE 6-39

WEIGHTED MILEAGE REGRESSION
Composite NO_xC, gm/mile

	Value at 28000 miles[b]	Intercept	Slope[a] Value	Slope[a] Percentage[c]
American Motors	4.70	6.31	-0.0574	-1.22
Chrysler	5.60	6.08	-0.0173	-0.31
Ford	5.72	6.45	-0.0261	-0.46
Gen Motors	5.02	5.57	-0.0198	-0.39
Chevrolet	4.91	5.17	-0.0095	-0.18
Pontiac	5.41	6.32	-0.0326	-0.60
Oldsmobile	4.58	5.46	-0.0313	-0.68
Buick	4.90	5.42	-0.0185	-0.38
Cadillac	6.15	6.93	-0.0278	-0.45
Volkswagen	2.75	3.44	-0.0246	-0.89
Total	5.09	5.70	-0.0215	-0.38

a. Slope per 1000 miles

b. Calculated value from linear relation at 28,000 miles

c. Percentage based on calculated value at 28,000 miles

6.5 EFFECTS OF MINOR TUNE-UP PRACTICES ON EMISSIONS

6.5.1 Foreward

In Phase I a Hot Start test was made with corrected timing and idle settings after the Cold Start test if the settings were not within specifications. (Details are explained in Section 5.1.3). After the Hot Start test the settings were restored to their former values. In Phases II and III, the Hot Start test was made with a new air filter if the vehicle filter was excessively restricted. The old filter was then replaced in its original position. The difference between the composite emission levels of the hot cycles in the Cold Start test (cycles 6 and 7) and corresponding hot cycles in the Hot Start test was used as the measure of the effect of the tune-up practice.

6.5.2 Summary

The hot cycle data summarized below show that idle and timing adjustments had a statistically significant effect on only the CO levels, giving a definite but small decrease. There was some evidence that the HC level was also reduced. Replacing dirty air filters gave a similar result for the CO, but the HC level was not reduced. Neither tune-up practice caused much change in the mean NO_x values.

6.5.3 Discussion of Results

Hot start tests were carried out following about 15 percent of the cold start runs:

	Phase I	Phase II	Phase III	Total
Kansas City	129	37	47	213
Houston	63	19	20	102
Both cities	192	56	67	315

The hot and cold start results for individual vehicles are given in Appendix B, Tables 1 to 6. Averages results for groups, by car makes and manufacturers, and also the totals for each phase are given in Appendix C, Tables 1 to 6. Tables 6-40 and 6-41 below summarize the data for manufacturers (a finer subdivision is meaningless in view of the small subset sizes).

The Phase I hot start data for HC were lower than the cold start data in Houston, but hardly changed in Kansas City. The CO levels were significantly lowered in both cities although the actual differences are small, about 0.2 percent.

Changing the air filter (Phases II and III) had little effect on the hydrocarbons but lowered the CO by a small amount.

Neither procedure had a significant effect on the NO_x values. The data were so variable that small effects would not be discernible.

TABLE 6-40

TUNE-UP EFFECTS - KANSAS CITY
Difference Between Hot Cycle Emissions Before and After Tune-up[a]

	HC, PPM				CO, %				NOx, PPM			
	Cars	Ave.	Std. Dev.	t	Cars	Ave.	Std. Dev.	t	Cars	Ave.	Std. Dev.	t
AMC	5	-105	144	-1.63	5	-0.39	0.52	-1.68	5	-344	538	-1.43
Chrysler	21	1	53	0.09	21	-0.08	0.41	-0.89	21	-155	349	-2.04
Ford	24	-6	82	-0.36	24	-0.04	0.39	-0.50	24	157	433	1.78
GM	71	-8	269	0.25	71	-0.23	0.65	-2.98**	71	25	406	0.52
VW	8	30	59	1.44	8	0.12	0.18	1.89	8	21	496	0.12
PHASE I	129	-8	206	-0.44	129	-0.15	0.56	-3.04**	129	5	423	0.13
AMC	1	69	-	-	1	0.08	-	-	1	52	-	-
Chrysler	6	-113	162	-1.71	6	-0.91	1.19	-1.87	6	49	790	0.15
Ford	11	-21	56	-1.24	11	-0.22	0.27	-2.70*	11	0	213	0.00
GM	18	-30	462	-0.28	18	-0.87	0.65	-5.68**	18	59	223	1.12
VW	1	-65	-	-	1	-0.12	-	-	1	-111	-	-
PHASE II	37	-39	327	-0.73	37	-0.64	0.73	-5.33**	37	35	352	0.60
AMC	2	-97	123	-1.12	2	-0.49	0.41	-1.69	2	-297	1001	-0.42
Chrysler	5	128	382	0.75	5	-0.43	0.42	-2.29	5	127	206	1.38
Ford	15	4	41	0.38	15	0.00	0.62	0.00	15	41	164	0.97
GM	24	67	350	0.94	24	-0.16	0.26	-3.01*	24	8	156	0.25
VW	1	-274	-	-	1	-0.03	-	-	1	-139	-	-
PHASE III	47	39	281	0.95	47	-0.15	0.44	-2.38*	47	15	228	0.45
II, III	84	+5	303	+0.14	84	-0.37	0.63	-5.31**	84	24	287	+0.76

(a) Idle adjustments in Phase I. New air filter in Phase II and III.
* significant beyond 5% point.
** significant beyond 1% point.

TABLE 6-41

TUNE-UP EFFECTS - HOUSTON

Difference Between Hot Cycle Emissions Before and After Tune-Up[a]

	HC, PPM				CO, %				NOx, PPM			
	Cars	Ave.	Std.Dev.	t	Cars	Ave.	Std.Dev.	t	Cars	Ave.	Std.Ave.	t
AMC	2	-67	37	-2.56	2	-0.12	0.17	-1.00	2	-487	800	-0.86
Chrysler	9	-88	205	-1.29	9	-0.13	0.18	-2.17	7	-165	461	-0.95
FMC	14	-116	318	-1.37	14	-0.15	0.46	-1.22	11	194	529	1.22
GM	36	-116	192	-3.63**	36	-0.28	0.40	-4.20**	27	-11	291	-0.20
VW	2	-122	154	-1.12	2	-0.29	0.33	-1.24	1	133	-	-
PHASE I	63	-110	219	-3.99**	63	-0.23	0.38	-4.80**	48	-3	413	-0.05
AMC	3	-1	6	-0.29	3	0.05	0.54	0.16	3	-10	145	-0.12
Chrysler	4	-67	96	-1.40	4	-0.64	0.75	-1.71	4	213	281	1.52
FMC	2	-25	27	-1.31	2	-0.35	0.11	-4.50**	2	-147	144	1.44
GM	10	-1	27	-0.12	10	-0.41	0.86	-1.51	10	99	324	0.97
VW	-	-	-	-	-	-	-	-	-	-	-	-
PHASE II	19	-17	52	-1.43	19	-0.38	0.74	-2.24*	19	80	283	1.23
AMC	1	-10	-	-	1	-0.12	-	-	1	103	-	-
Chrysler	5	-6	7	1.92	5	-0.05	0.12	-0.93	5	-24	51	-1.05
FMC	5	-7	16	-0.99	5	-0.18	0.16	-2.52	5	32	126	0.57
GM	9	2	11	-0.55	9	-0.09	0.26	-1.04	9	87	99	2.64*
VW	-	-	-	-	-	-	-	-	-	-	-	-
PHASE III	20	-2	12	-0.75	20	-0.10	0.20	-2.24*	20	46	101	2.04
II, III	39	-9	38	-1.55	39	-0.24	0.55	-2.70*	39	63	208	1.88

(a) Idle adjustments in Phase I. New air filter in Phase II and III.

* Significant beyond 5% point.

** Significant beyond 1% point.

6.6 MAINTENANCE PRACTICE INFORMATION

Maintenance information was reported by the vehicle owner at the time of the test for about half of the tests. The table below shows that the percentage of tests with maintenance information varied greatly from city to city and from phase to phase.

Percentage of Tests With Maintenance Information

	Phase I	Phase II	Phase III	All Phases
Kansas City	51	25	6	31
Houston	90	81	38	74
Both Cities	70	52	22	52

It is obvious that the amount of reporting in the last two phases is too scanty to permit more than an overall treatment based on all the vehicle classes combined. Table 6-42 summarizes information obtained on the following ten classes of maintenance items.

Ignition Timing

Points

Plugs

Ignition Wires

Carburetor

PCV Valve

Air Filter

Fuel Filter

Valve Job

Tune Up

TABLE 6-42

PERCENTAGE OF TIMES WHEN MAINTENANCE SHOWN WAS DONE
BASED ON REPORTED MAINTENANCE DATA ONLY

CITY	KANSAS CITY				HOUSTON				BOTH CITIES			
PHASE	1	2	3	ALL	1	2	3	ALL	1	2	3	ALL
IGNITION TIMING	54	43	7	49	56	12	19	36	55	20	17	40
POINTS	56	56	20	54	68	51	54	60	63	52	50	58
PLUGS	56	52	20	53	69	53	59	62	64	53	53	60
IGNITION WIRES	6	2	0	5	4	6	6	5	5	5	6	5
CARBURETOR	34	19	7	29	28	16	22	23	30	17	20	25
PCV VALVE	23	12	0	19	12	17	11	14	16	15	9	15
AIR FILTER	41	29	7	36	40	42	35	40	40	39	31	39
FUEL FILTER	8	8	0	8	10	1	3	6	9	3	3	7
VALVE JOB	2	5	0	2	1	3	1	2	1	3	1	2
TUNE UP	37	38	20	37	56	16	16	37	49	22	17	37

TOTAL NUMBER OF RUNS WITH INFORMATION ABOUT THESE KINDS OF MAINTENANCE

	226	86	15	327	388	257	94	739	614	343	109	1066

The percentages of times that the items were reportedly done are roughly about the same in both cities. Ignition timing adjustments were more common in Kansas City (49 percent) than in Houston (36 percent) while new distributor points and plugs were noted 61 percent of the time in Houston but only 53 percent in Kansas City. In general, tune ups were done more frequently at lower mileages.

A listing of the computer data deck containing the maintenance data on individual cars is shown in Appendix H.

6.7 IDLE TESTS AS PREDICTOR OF FEDERAL SEVEN-MODE TEST BY CHEW TECHNIQUE

Marian F. Chew suggested in an SAE paper[a] that emission testing of individual vehicles under idle conditions only could be substituted for more elaborate procedures such as the Federal seven-mode test. She investigated several different modes of operation and states that the hot idle mode was the best discriminator. The use of the hot idle mode was tried as a predictor of the seven-mode composite data obtained in the present program. It was found that the use of "decision values" of 205 ppm HC and 2.85 percent CO at hot idle lead to the same conclusions as the full seven-mode composite test 83 percent of the time, when the seven-mode test "policy levels" are taken to be 275 ppm HC and 1.50 percent CO for each individual vehicle.

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a. Marian F. Chew, Auto Smog Inspection at Idle Only, SAE paper 690505, May 1969.

The data for HC and CO emissions on all of the vehicles tested provided a possible check on the Chew technique. Two questions are to be answered. First, how well do the levels of HC and CO at "hot idle" (Cycle 7) predict that the car will pass or fail in emission levels based on the full seven-mode composite results? Second, what are the optimum levels of HC and CO to be used as "decision levels" for the idle values so as to minimize the total of the errors of commission and errors of omission? The answer to these questions depend on the "policy levels" set for the composite data. For this analysis, policy levels of 275 ppm HC and 1.50 percent CO were taken, with Volkswagen vehicles excluded. A vehicle with emissions below both these levels is said to pass, otherwise it fails. For any given pair of "decision levels" for the idle tests, the vehicle can be stated to pass the composite test if both the HC and CO levels at idle are less than these decision levels. There are four possibilities:

1. Composite test passes - Idle test says pass.

   Correct decision

2. Composite test passes - Idle test says fail.

   Wrong decision, an error of commission

3. Composite test fails - Idle test says pass.

   Wrong decision, an error of omission

4. Composite test fails - Idle test says fails.

   Correct decision

For both cities and the three phases, 25.6 percent of the vehicles passed the seven-mode composite test based on "policy levels" of 275 ppm HC and 1.50 percent CO. (Vehicles with HC or CO data, which had been coded as unacceptable, were excluded.) The balance of 74.4 percent failed, based on the composite data. For decision levels of close to 205 ppm HC and 2.85 percent CO, the idle test led to the same conclusion as the composite test 83.0 percent of the time. Or, putting it another way, there were 17.0 percent wrong decisions.

While these are favorable results, it should be emphasized that the idle data used are not independent but a part of the composite data and hence are inherently correlated. A less important criticism is that the errors of commission and omission are equally weighted. It could be argued that errors of omission are much more important from a public health point of view. The best basis of judging the test would be to weight the kinds of errors in some other way than equally.

The results summarized above were obtained using a specially written FORTRAN computer program. The input was the Packed Data Deck, which provided values of composite HC and CO and "hot idle" cycle 7 HC and CO, for every cold start test made. (Volkswagen vehicles were excluded by testing on the identification codes). The "policy values" were entered as an input to facilitate alternative treatments. A framework of HC and CO "decision values" based on the idle condition was created by the input of initial, final and difference values for HC and CO. In an early run the framework was quite coarse, since there was no estimate of the exact location of the optimum decision values. Later runs used a finer framework. The computer program is uncomplicated. The emission data are stored to permit unlimited comparisons. For each "policy value" pair and, one after the other, each "decision value" pair, the whole set of tests is examined one test at a time. Each test falls into one of the four categories described above and the four alternatives are tallied. After the last test, the number of decisions in each category is printed with the total right and wrong decisions. As the calculations proceed through the framework, the pair of decision values for the minimum number of wrong decisions is established. (There may be more than one pair of decision values with the same minimum number of wrong decisions; up to 20 can be displayed). The pair (or pairs)

represent the best possible performance of the idle test in predicting whether the composite test will pass or fail. If examination of the tables suggests that the optimum values lie outside the framework, a new run is easily made, since only one card need be changed.

The ultimate aim of the computer program is the establishment of the optimum HC and CO levels for decisions at idle conditions and a measure of how well the idle decision predicts the composite results. The individual computer output line for each decision pair in the framework is not superfluous, since it shows the shape of the surface and the effect of relaxing the optimum values in all four directions.

For this particular set of data and at the chosen policy levels of 275 ppm HC and 1.50 percent CO, the minimum number of wrong decisions falls at almost the same hot-idle CO level for each hot-idle HC level tried. A careful scan of the HC levels is needed to establish the minimum since the curve showing the minimum number of decisions for each hot-idle HC level is a discontinuous function (Fig. 6-3).

Samples of the computer program output are given in Tables 6-43, 6-44, and 6-45. The first table for 180 and part of

185 ppm HC is at the beginning of this particular computer output; note that a plot of the minimum number of wrong decisions would be fairly flat - any value of percentage CO would do about as well if it were between 2.55 and 2.95. This same pattern persists at higher HC decision levels. The other two tables show the output at and just after the minimum conditions.

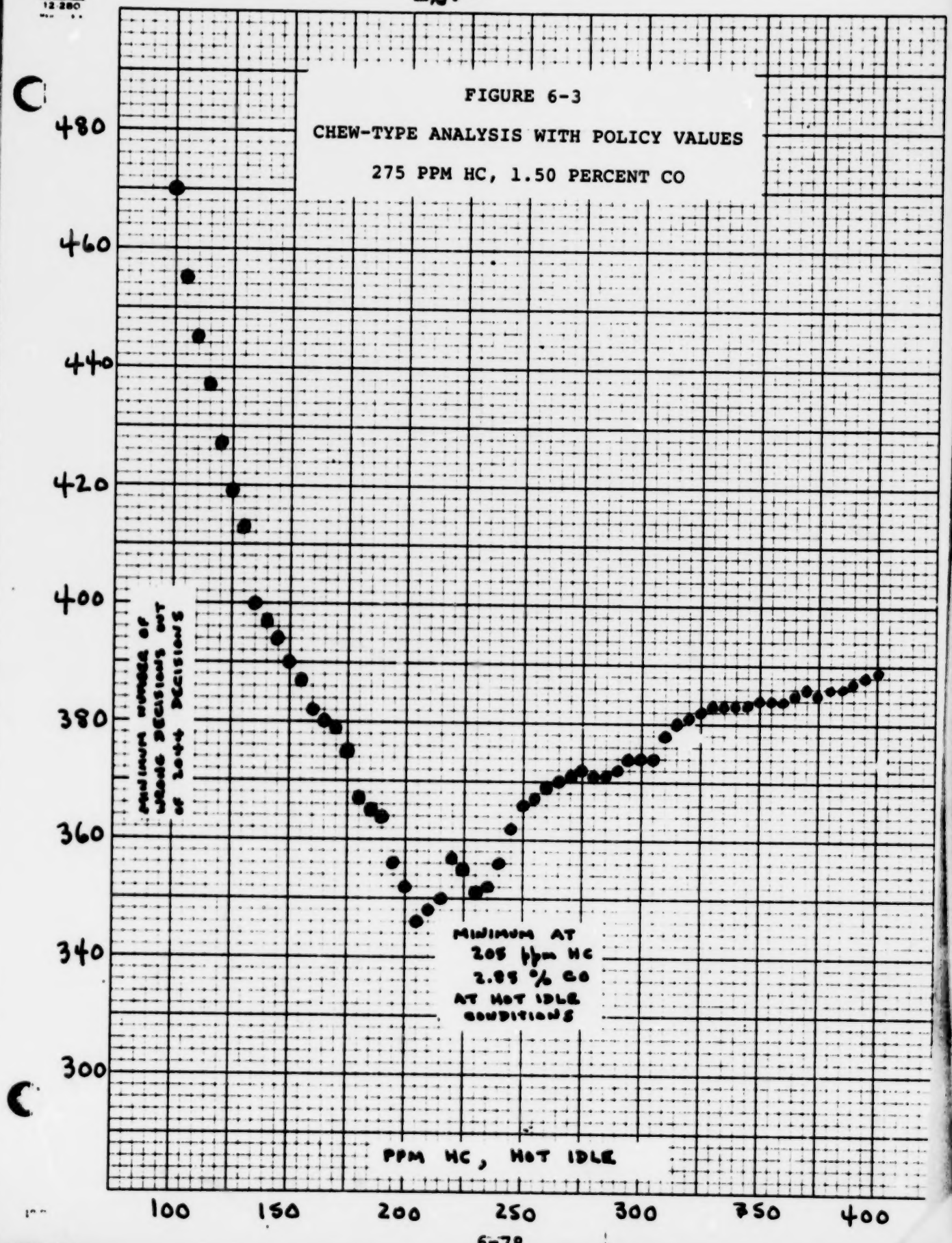

FIGURE 6-3

CHEW-TYPE ANALYSIS WITH POLICY VALUES

275 PPM HC, 1.50 PERCENT CO

TABLE 6-43

COMPOSITE		IDLE		COMP. PASSES		COMP. FAILS		DECISIONS	
HC PPM	CO PCT	HC PPM	CO PCT	IDLE PASSES	IDLE FAILS	IDLE PASSES	IDLE FAILS	TOTAL CORRECT	TOTAL WRONG
275	1.50	180	2.50	243	279	98	1418	1661	377
275	1.50	180	2.55	248	274	98	1418	1666	372
275	1.50	180	2.60	249	273	100	1416	1665	373
275	1.50	180	2.65	251	271	102	1414	1665	373
275	1.50	180	2.70	255	267	104	1412	1667	371
275	1.50	180	2.75	255	267	104	1412	1667	371
275	1.50	180	2.80	259	263	105	1411	1670	368
275	1.50	180	2.85	260	262	105	1411	1671	367 ←
275	1.50	180	2.90	261	261	109	1407	1668	370
275	1.50	180	2.95	261	261	111	1405	1666	372
275	1.50	180	3.00	263	259	117	1399	1662	376
275	1.50	180	3.05	264	258	121	1395	1659	379
275	1.50	180	3.10	266	256	126	1390	1656	382
275	1.50	180	3.15	266	256	130	1386	1652	386
275	1.50	180	3.20	267	255	132	1384	1651	387
275	1.50	180	3.25	268	254	135	1381	1649	389
275	1.50	180	3.30	268	254	138	1378	1646	392
275	1.50	180	3.35	268	254	143	1373	1641	397
275	1.50	180	3.40	269	253	143	1373	1642	396
275	1.50	180	3.45	270	252	145	1371	1641	397
275	1.50	180	3.50	270	252	147	1369	1639	399
275	1.50	180	3.55	270	252	148	1368	1638	400
275	1.50	185	2.50	253	269	106	1410	1663	375
275	1.50	185	2.55	260	262	107	1409	1669	369
275	1.50	185	2.60	261	261	109	1407	1668	370
275	1.50	185	2.65	263	259	111	1405	1668	370
275	1.50	185	2.70	267	255	113	1403	1670	368
275	1.50	185	2.75	268	254	113	1403	1671	367
275	1.50	185	2.80	272	250	116	1400	1672	366
275	1.50	185	2.85	273	249	116	1400	1673	365 ←
275	1.50	185	2.90	274	248	120	1396	1670	368
275	1.50	185	2.95	275	247	122	1394	1669	369
275	1.50	185	3.00	277	245	129	1387	1664	374
275	1.50	185	3.05	278	244	133	1383	1661	377
275	1.50	185	3.10	280	242	138	1378	1658	380
275	1.50	185	3.15	280	242	142	1374	1654	384
275	1.50	185	3.20	282	240	144	1372	1654	384

TABLE 6-44

COMPOSITE		IDLE		COMP. PASSES		COMP. FAILS		DECISIONS	
HC PPM	CO PCT	HC PPM	CO PCT	IDLE PASSES	IDLE FAILS	IDLE PASSES	IDLE FAILS	TOTAL CORRECT	TOTAL WRONG
275	1.50	200	2.60	287	235	125	1391	1678	360
275	1.50	200	2.65	289	233	127	1389	1678	360
275	1.50	200	2.70	295	227	129	1387	1682	356
275	1.50	200	2.75	296	226	129	1387	1683	355
275	1.50	200	2.80	301	221	132	1384	1685	353
275	1.50	200	2.85	302	220	132	1384	1686	352
275	1.50	200	2.90	303	219	137	1379	1682	356
275	1.50	200	2.95	304	218	139	1377	1681	357
275	1.50	200	3.00	306	216	146	1370	1676	362
275	1.50	200	3.05	307	215	150	1366	1673	365
275	1.50	200	3.10	310	212	156	1360	1670	368
275	1.50	200	3.15	310	212	162	1354	1664	374
275	1.50	200	3.20	312	210	165	1351	1663	375
275	1.50	200	3.25	313	209	168	1348	1661	377
275	1.50	200	3.30	314	208	171	1345	1659	379
275	1.50	200	3.35	314	208	176	1340	1654	384
275	1.50	200	3.40	315	207	178	1338	1653	385
275	1.50	200	3.45	316	206	181	1335	1651	387
275	1.50	200	3.50	317	205	185	1331	1648	390
275	1.50	200	3.55	317	205	187	1329	1646	392
275	1.50	205	2.50	284	238	123	1393	1677	361
275	1.50	205	2.55	293	229	124	1392	1685	353
275	1.50	205	2.60	295	227	127	1389	1684	354
275	1.50	205	2.65	297	225	129	1387	1684	354
275	1.50	205	2.70	303	219	131	1385	1688	350
275	1.50	205	2.75	304	218	131	1385	1689	349
275	1.50	205	2.80	310	212	135	1381	1691	347
275	1.50	205	2.85	311	211	135	1381	1692	346
275	1.50	205	2.90	312	210	140	1376	1688	350
275	1.50	205	2.95	313	209	142	1374	1687	351
275	1.50	205	3.00	315	207	149	1367	1682	356
275	1.50	205	3.05	316	206	153	1363	1679	359
275	1.50	205	3.10	319	203	159	1357	1676	362
275	1.50	205	3.15	319	203	165	1351	1670	368
275	1.50	205	3.20	321	201	168	1348	1669	369
275	1.50	205	3.25	323	199	171	1345	1668	370
275	1.50	205	3.30	324	198	174	1342	1666	372

TABLE 6-45

COMPOSITE		IDLE		COMP. PASSES		COMP. FAILS		DECISIONS	
HC PPM	CO PCT	HC PPM	CO PCT	IDLE PASSES	IDLE FAILS	IDLE PASSES	IDLE FAILS	TOTAL CORRECT	TOTAL WRONG
275	1.50	205	2.60	295	227	127	1389	1684	354
275	1.50	205	2.65	297	225	129	1387	1684	354
275	1.50	205	2.70	303	219	131	1385	1688	350
275	1.50	205	2.75	304	218	131	1385	1689	349
275	1.50	205	2.80	310	212	135	1381	1691	347
275	1.50	205	2.85	311	211	135	1381	1692	346
275	1.50	205	2.90	312	210	140	1376	1688	350
275	1.50	205	2.95	313	209	142	1374	1687	351
275	1.50	205	3.00	315	207	149	1367	1682	356
275	1.50	205	3.05	316	206	153	1363	1679	359
275	1.50	205	3.10	319	203	159	1357	1676	362
275	1.50	205	3.15	319	203	165	1351	1670	368
275	1.50	205	3.20	321	201	168	1348	1669	369
275	1.50	205	3.25	323	199	171	1345	1668	370
275	1.50	205	3.30	324	198	174	1342	1666	372
275	1.50	205	3.35	325	197	179	1337	1662	376
275	1.50	205	3.40	326	196	181	1335	1661	377
275	1.50	205	3.45	327	195	184	1332	1659	379
275	1.50	205	3.50	328	194	189	1327	1655	383
275	1.50	205	3.55	328	194	192	1324	1652	386
275	1.50	210	2.50	286	236	127	1389	1675	363
275	1.50	210	2.55	295	227	128	1388	1683	355
275	1.50	210	2.60	297	225	131	1385	1682	356
275	1.50	210	2.65	299	223	133	1383	1682	356
275	1.50	210	2.70	305	217	135	1381	1686	352
275	1.50	210	2.75	306	216	135	1381	1687	351
275	1.50	210	2.80	312	210	139	1377	1689	349
275	1.50	210	2.85	313	209	139	1377	1690	348
275	1.50	210	2.90	315	207	145	1371	1686	352
275	1.50	210	2.95	316	206	147	1369	1685	353
275	1.50	210	3.00	318	204	155	1361	1679	359
275	1.50	210	3.05	319	203	160	1356	1675	363
275	1.50	210	3.10	322	200	166	1350	1672	366
275	1.50	210	3.15	322	200	172	1344	1666	372
275	1.50	210	3.20	324	198	175	1341	1665	373
275	1.50	210	3.25	326	196	178	1338	1664	374

LIST OF APPENDIXES

VOLUME II

Appendix A: Test Vehicle Information Tables

Appendix B: Vehicle Emission Test Data Tables

Appendix C: Means and Standard Deviations Tables

Appendix D: Conformity Analysis Tables

Appendix E: Analysis of Variance (ANVAR)

- E-1: Methods For Unbalanced Analysis of Variance
- E-2: ANVAR Means Tables
- E-3: Calculations for Unbalanced ANVAR

Appendix F: Mileage Accumulation Tables

Appendix G: Mileage Regressions

- G-1: Unweighted Mileage Regressions
- G-2: Weighted Mileage Regressions

Appendix H: Maintenance Tables

APPENDIX A

TEST VEHICLE INFORMATION TABLES

1. Legend and Interpretation of Test Vehicle Information Tables.

2. Tables:

A-1	Kansas City	Phase I
A-2	Kansas City	Phase II
A-3	Kansas City	Phase III
A-4	Houston	Phase I
A-5	Houston	Phase II
A-6	Houston	Phase III

LEGEND AND INTERPRETATION OF
TEST VEHICLE INFORMATION TABLES

Key Words	Description
CAR NO	This is the number used to identify each vehicle and the location where test was conducted. The first number denotes the location. 1 = Kansas City, Mo., 2 = Houston, Texas. The last five numbers denote the identification number for each vehicle
RUN NO	This is a sequential number assigned to each test. The first number denotes the phase of testing for all cities. 1 = Phase 1, 2 = Phase 2, 3 = Phase 3, etc.
S	This indicates whether a vehicle was tested from a hot start or cold start condition. C = cold start test H = hot start test R = replicate cold start test
DATE	Date vehicle was tested.
MFG	This denotes the manufacturer of test vehicle. A = American Motors Corporation C = Chrysler Corporation F = Ford Motor Company G = General Motors Corporation V = Volkswagen
YR	The model year of test vehicle.
MAKE	The make of test vehicle.
MODEL	The model of the test vehicle.
ODOMR	This indicates the odometer reading of vehicle at the beginning of test.
CID	Represents the cubic inch displacement of test vehicle.

LEGEND

(cont'd)

Key Words	Description
CYL	The number of cylinders in the test vehicle.
TRN	Type of transmission in test vehicle. A = Automatic M = Manual
A/C	Denotes if vehicle equipped with an air conditioning system. 0 = without air conditioning 1 = with air conditioning
FSO	Fuel shut-off. 0 = no fuel shut-off 1 = fuel shut-off device
VIS	Represents number of carburetor venturis. (Note: A "zero" represents fuel injection)
PCV	Represents positive crankcase ventilation system. 0 = without PCV 1 = with PCV
EXH	Represents type of exhaust control device. 1 = engine modification 2 = air pump
EVP	Denotes if vehicle is equipped with evaporative emissions control system. 0 = without control 1 = with control

LEGEND

(cont'd)

Key Words	Description
TMP	Represents ambient temperature before test, °F.
HUM	Represents absolute humidity before test, in grains of water per pound of dry air.
BAROM	Represents barometer reading before test, in. Hg.
INRT	Represents inertia loading of vehicle.
HP	Horsepower setting of dynamometer.
LIC NO	The license number of the vehicle tested.

TABLE A-1

Kansas City

Phase I

COLD START VEHICLE INFORMATION   KANSAS CITY PHASE I   PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOM	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	FVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100106	100151	C	11/21/69	A01	68	AMER	AMERI	10936	232	6	M	0	0	1	1	1	0	71	35	30.26	3000	8	53W527
100150	100206	C	12/01/69	A01	68	AMER	REBEL	4999	232	6	A	0	0	1	1	1	0	70	29	30.41	3500	8	K03661
100195	100263	C	12/10/69	A01	68	AMER	JAVEL	15711	232	6	M	0	0	1	1	1	0	70	36	29.66	3000	8	MMF655
100195	100267	4	12/11/69	A01	68	AMER	JAVEL	15717	232	6	M	0	0	1	1	1	0	70	24	30.05	3000	8	MMF655
100219	100284	C	12/18/69	A01	68	AMER	JAVEL	21378	232	6	M	1	0	1	1	1	0	72	27	30.27	3000	8	ZL7912
100219	100293	M																					
100238	100325	C	12/30/69	A01	69	AMER	REBEL	11927	232	6	A	0	0	1	1	1	0	68	20	30.00	3500	8	WY62142
100244	100331	C	12/31/69	A01	69	AMER	JAVEL	20287	232	6	M	0	0	1	1	1	0	72	25	30.10	3000	8	J010313
100244	100332	M																					
100250	100339	C	1/07/70	A01	69	AMER	JAVEL	10267	232	6	A	1	0	1	1	1	0	68	10	30.35	3000	8	J091083
100252	100341	C	1/07/70	A01	69	AMER	JAVEL	20260	232	6	M	1	0	1	1	1	0	68	10	30.35	3000	8	542267
100401	100543	C	2/13/70	A01	69	AMER	RAMBL	7751	232	6	A	1	0	1	1	1	0	70	21	30.11	3000	8	K3X033
100401	100544	M																					
100403	100546	C	2/13/70	A01	68	AMER	REBEL	13616	232	6	A	0	0	1	1	1	0	70	22	30.07	3500	8	K2T963
100403	100547	M																					
100406	100551	C	2/14/70	A01	69	AMER	JAVEL	20969	232	6	M	0	0	1	1	1	0	69	18	29.98	3000	8	P22451
100406	100552	M																					
100412	100563	C	2/16/70	A01	69	AMER	JAVEL	32964	232	6	A	1	0	1	1	1	0	72	22	30.29	3000	8	Z5M821
100417	100570	C	2/17/70	A01	69	AMER	RAMBL	8675	232	6	A	0	0	1	1	1	0	72	37	29.61	3000	8	Y3R043
100435	100598	C	2/21/70	A01	69	AMER	REBEL	22744	232	6	A	0	0	1	1	1	0	75	20	30.60	3500	8	WY33960
100443	100608	C	2/21/70	A01	69	AMER	RAMBL	8169	232	6	A	1	0	1	1	1	0	72	20	30.57	3000	8	57X429
100092	100080	C	11/12/69	C11	69	PLYM	VALIA	15347	225	6	A	0	0	1	1	1	0	70	40	30.09	3000	8	K8T638
100159	100233	C	12/09/69	C11	68	DODG	DART	36431	225	6	A	0	0	1	1	1	0	68	25	30.03	3000	8	53Y332
100169	100234	M																					
100202	100279	C	12/16/69	C11	69	DODG	DART	18695	225	6	A	1	0	1	1	1	0	71	46	30.34	3000	8	K95601
100202	100286	R	12/17/69	C11	68	DODG	DART	18701	225	6	A	1	0	1	1	1	0	70	28	30.31	3000	8	K95601
100224	100309	C	12/23/69	C11	69	PLYM	BELVE	9369	225	6	M	1	0	1	1	1	0	71	35	29.70	3500	8	WY80514
100249	100336	C	1/06/70	C11	69	PLYM	VALIA	5819	225	6	A	0	0	1	1	1	0	68	8	30.39	3000	8	54X275
100263	100354	C	1/09/70	C11	68	PLYM	BARAC	40977	225	6	A	0	0	1	1	1	0	68	14	30.45	3500	8	J010015
100263	100355	M																					
100268	100358	C	1/10/70	C11	68	DODG	DART	19161	225	6	A	1	0	1	1	1	0	72	19	29.85	3000	8	WY58602
100268	100359	M																					
100268	100364	C	1/13/70	C11	69	DODG	DART	15939	225	6	A	0	0	1	1	1	0	72	19	29.75	3000	8	WY58602
100268	100368	M																					
100274	100374	C	1/13/70	C11	69	DODG	DART	12473	225	6	A	0	0	1	1	1	0	72	23	30.15	3000	8	K6C534
100296	100387	C	1/19/70	C11	69	DODG	DART	24275	225	6	A	1	0	1	1	1	0	68	49	30.29	3000	8	J057997
100296	100388	M																					
100299	100393	C	1/19/70	C11	69	DODG	DART	9950	225	6	M	0	0	1	1	1	0	68	48	30.19	3000	8	J057997
100325	100461	C	1/29/70	C11	69	PLYM	VALIA	3207	225	6	A	0	0	1	1	1	0	68	20	30.32	3000	8	X8R868
100325	100462	M																					
100326	100463	C	1/29/70	C11	69	DODG	DART	10747	225	6	M	0	0	1	1	1	0	68	20	30.35	3000	8	E45205
100358	100493	C	2/05/70	C11	69	DODG	DART	22012	225	6	A	0	0	1	1	1	0	70	25	30.25	3000	8	582523
100359	100494	C	2/06/70	C11	69	PLYM	FURY	6158	225	6	A	0	0	1	1	1	0	68	35	30.30	4000	8	DG8919
100359	100496	M																					
100012	100021	C	11/03/69	C12	68	PLYM	SATEL	25587	318	8	A	1	0	2	1	1	0	71	40	30.25	3500	8	J053997
100012	100022	M																					
100036	100057	C	11/10/69	C12	69	PLYM	STAWA	21999	318	8	A	1	0	2	1	1	0	69	54	30.11	4000	8	A4A745
100036	100058	M																					
100051	100079	C	11/12/69	C12	68	PLYM	SATEL	39651	318	8	M	1	0	2	1	1	0	70	40	30.09	3500	8	A1M236
100059	100089	C	11/13/69	C12	68	PLYM	FURY	8126	318	8	A	1	0	2	1	1	0	72	34	30.10	4000	8	M75149
100061	100091	C	11/13/69	C12	69	PLYM	FURY	20883	318	8	M	0	0	2	1	1	0	74	26	30.10	4000	8	X45719
100061	100092	M																					
100105	100159	C	11/21/69	C12	68	PLYM	SATEL	23892	318	8	A	0	0	2	1	1	0	72	28	30.30	3500	8	R7W311
100127	100171	C	11/24/69	C12	69	PLYM	FURY	7968	318	8	A	1	0	2	1	1	0	69	30	30.63	4000	8	F7P596
100127	100172	M																					
100122	100175	C	11/24/69	C12	68	PLYM	FURY	47244	318	8	A	1	0	2	1	1	0	70	34	30.53	4000	8	ZM2486
100122	100176	M																					
100128	100183	C	11/25/69	C12	69	PLYM	FURY	14872	318	8	A	1	0	2	1	1	0	69	30	30.74	4000	8	A6P084
100132	100187	C	11/25/69	C12	69	PLYM	SATEL	14263	318	8	A	1	0	2	1	1	0	70	25	30.68	3500	8	X6T318
100162	100225	C	12/04/69	C12	69	DODG	CHARG	30932	318	8	A	1	0	2	1	1	0	71	24	30.24	3500	8	P4X538
100163	100226	C	12/04/69	C12	68	PLYM	SATEL	26069	318	8	A	0	0	2	1	1	0	70	24	30.22	3500	8	X35986
100170	100235	C	12/05/69	C12	68	PLYM	STAWA	30239	318	8	A	1	0	2	1	1	0	70	24	30.00	4000	8	J077310
100180	100246	C	12/08/69	C12	69	DODG	CHARG	10744	318	8	A	1	0	2	1	1	0	70	24	29.75	4000	8	P4X379
100186	100252	C	12/09/69	C12	69	PLYM	FURY	3933	318	8	A	1	0	2	1	1	0	70	51	29.89	4000	8	597497
100188	100586	C	2/19/70	C12	68	PLYM	SATEL	45171	318	8	A	1	0	2	1	1	0	70	16	30.39	3500	8	J038151
100198	100592	4	2/20/70	C12	68	PLYM	SATEL	45177	318	8	A	1	0	2	1	1	0	72	12	30.76	3500	8	J038151
100520	101136	C	12/18/70	C12	69	PLYM	FURY	14494	318	8	0	0	0	2	1	1	0	74	22	30.23	4000	8	DG9754
100530	101349	C	2/16/71	C12	69	PLYM	FURY	26380	318	8	0	1	0	2	1	1	0	76	16	29.65	4000	8	YP3855
100033	100572	C	2/18/70	C13	69	CHRY	NEWPO	4367	383	8	A	1	0	2	1	1	0	69	31	29.47	4500	8	M6W121
100047	100074	C	11/11/69	C13	64	CHRY	NEWPO	5351	383	8	A	1	0	2	1	1	0	74	46	30.00	4500	8	894927
100047	100075	M																					
100056	100086	C	11/13/69	C13	69	CHRY	NEWPO	6933	383	8	A	1	0	2	1	1	0	73	28	30.10	4500	8	A1M078
100085	100126	C	11/19/69	C13	69	DODG	CHARG	4432	383	8	A	1	0	2	1	1	0	70	22	30.66	4000	8	J011265
100085	100819	M																					
100090	100131	C	11/19/69	C13	69	CHRY	NEWPO	22993	383	8	A	1	0	2	1	1	0	75	21	30.59	4500	8	9X863
100090	100132	M																					
100094	100142	C	11/20/69	C13	64	CHRY	NEWPO	25687	383	8	A	1	0	2	1	1	0	71	29	30.50	4500	8	X65216
100117	100168	C	11/22/69	C13	69	PLYM	STAWA	23301	383	8	A	1	0	2	1	1	0	74	36	30.00	4000	8	J01MC77
[illegible]	100184	C	11/25/69	C13	67	CHRY	NEWPO	23376	383	8	A	1	0	2	1	1	0	70	25	30.68	4500	8	[illegible]
[illegible]	100194	C	11/26/69	C13	69	CHRY	NEWPO	11247	383	8	A	1	0	2	1	1	0	69	28	30.52	4500	8	C7[illegible]823

KANSAS CITY PHASE I — PROCESSING DATE- 09/27/72

COLD CAR NO	START RUN NO	S	VEHICLE INFORMATION --DATE--	PFG	YR	MAKE	MODEL	ODOMT	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC	NO
100147	100231	C	12/05/69	C13	69	DODG	POLAR	12962	383	P	A	1	0	2	1	1	0	69	23	30.04	4000	B	J011134	
100174	100239	C	12/09/69	C13	69	DODG	STAMA	21700	383	P	A	1	0	2	1	1	0	70	24	30.13	5000	B	P8A225	
100174	100240	H																						
100217	100298	C	12/23/69	C13	69	PLYM	FURY	50860	383	P	A	1	0	2	1	1	0	68	29	30.00	4000	B	J010647	
100222	100305	C	12/22/69	C13	69	CHRY	NEWPO	46700	383	P	A	1	0	2	1	1	0	72	25	29.41	4500	B	P95635	
100237	100317	C	12/27/69	C13	68	CHRY	NEWPO	33464	383	P	A	1	0	2	1	1	0	70	30	29.75	4500	B	3F3399	
100249	100393	C	1/20/70	C13	69	PLYM	STAMA	37496	383	P	A	1	0	2	1	1	0	71	20	30.41	4500	B	WY26012	
100249	100394	H	1/21/70	C13	69	PLYM	STAMA	32432	383	P	A	1	0	2	1	1	0	68	14	30.67	4500	B	WY26012	
100519	101129	C	12/16/70	C13	AE	PLYM	FURY	39270	383	P	A	1	0	2	1	1	0	74	26	30.31	4000	B	J017014	
100521	101139	C	12/18/70	C13	69	DODG	POLAR	22952	383	P	A	0	1	0	2	1	1	0	74	22	30.30	4500	B	PR9072	
100523	101155	C	12/22/70	C13	69	CHRY	NEWPO	23465	383	P	A	0	1	0	2	1	1	0	74	22	30.20	4500	B	DGA920	
100101	100145	C	11/21/69	C14	69	CHRY	IMPER	18383	440	P	A	1	0	4	1	1	0	69	27	30.33	5500	B	C4N490	
100161	100224	C	12/04/69	C14	69	CHRY	IMPER	4141	440	P	A	1	0	4	1	1	0	71	24	30.24	4000	B	C9N527	
100197	100268	C	12/11/69	C14	69	CHRY	NEWYO	12807	440	P	A	1	0	4	1	1	0	70	26	30.07	4500	B	P1W328	
100197	100269	H																						
100226	100311	C	12/23/69	C14	69	CHRY	NEWYO	10975	440	P	A	1	0	4	1	1	0	71	35	29.84	4500	B	A6A077	
100256	100345	C	1/08/70	C14	69	PLYM	GTX	12026	440	P	A	0	0	4	1	1	0	68	7	30.61	4000	B	W95013	
100256	100346	H																						
100260	100351	C	1/09/70	C14	68	PLYM	VIP	21404	440	P	A	1	0	4	1	1	0	68	13	30.52	4000	B	WY54417	
100260	100361	R	1/10/70	C14	68	PLYM	VIP	21500	440	P	A	1	0	4	1	1	0	75	21	29.79	4000	B	WY54417	
100266	100360	C	1/10/70	C14	69	DODG	CHARG	8275	440	P	A	1	0	4	1	1	0	72	19	29.80	4000	B	WY12921	
100277	100377	C	1/16/70	C14	69	CHRY	NEWYO	21624	440	P	A	1	0	4	1	1	0	72	30	30.12	4500	B	K17347	
100295	100402	C	1/23/70	C14	68	DODG	CHARG	66560	440	P	A	0	0	4	1	1	0	75	30	30.08	4000	B	X24139	
100295	100403	H																						
100296	100408	C	1/23/70	C14	69	CHRY	IMPER	13392	440	P	A	1	0	4	1	1	0	70	31	30.10	4500	B	C5N193	
100306	100416	C	1/26/70	C14	69	DODG	CHARG	15169	440	P	A	1	0	4	1	1	0	68	30	30.01	4000	B	G74275	
100321	100434	C	1/29/70	C14	69	CHRY	STAMA	11066	440	P	A	1	0	4	1	1	0	68	20	30.28	5000	B	S94449	
100321	100435	H																						
100333	100451	C	1/31/70	C14	68	PLYM	GTX	31859	440	P	A	0	0	4	1	1	0	74	25	30.10	4000	B	K87752	
100342	100463	C	2/03/70	C14	69	CHRY	THREE	16995	440	P	A	1	0	4	1	1	0	68	18	30.35	4500	B	C29723	
100441	100606	C	2/21/70	C14	68	DODG	CHARG	31663	440	P	A	1	0	4	1	1	0	70	20	30.51	4000	B	WY56166	
100441	100607	H																						
100142	100199	C	11/28/69	F31	69	FORD	MUSTA	11249	200	6	A	1	0	1	1	1	0	68	23	30.57	3000	B	AB9153	
100177	100243	C	12/06/69	F31	69	FORD	MUSTA	13605	200	6	M	0	0	1	1	1	0	70	25	29.95	3500	B	S85552	
100187	100253	C	12/08/69	F31	68	FORD	FALCO	10712	200	6	A	1	0	1	1	1	0	70	30	29.90	3000	B	Z49582	
100213	100293	C	12/19/69	F31	69	FORD	FALCO	30248	200	6	A	1	0	1	1	1	0	69	24	30.40	3500	B	A43808	
100239	100328	C	12/30/69	F31	69	FORD	FALCO	12143	200	6	A	0	0	1	1	1	0	68	20	30.00	3000	B	P74381	
100255	100344	C	1/08/70	F31	68	FORD	MUSTA	15498	200	6	A	1	0	1	1	1	0	68	7	30.61	3000	B	F24214	
100292	100397	C	1/22/70	F31	68	FORD	MUSTA	27573	200	6	A	0	0	1	1	1	0	70	19	29.75	3000	B	K84230	
100322	100436	C	1/29/70	F31	68	FORD	MUSTA	17929	200	6	A	0	0	1	1	1	0	69	20	30.32	3000	B	S42966	
100322	100437	H																						
100328	100445	C	1/30/70	F31	68	FORD	FALCO	36440	200	6	A	0	0	1	1	1	0	73	24	30.40	3500	B	WY58189	
100349	100471	C	2/04/70	F31	68	FORD	FAIRL	18087	200	6	A	1	0	1	1	1	0	70	19	29.81	3500	B	X39799	
100353	100475	C	2/05/70	F31	68	FORD	MUSTA	29549	200	6	A	1	0	1	1	1	0	70	26	30.30	3000	B	K27852	
100353	100476	H																						
100354	100477	C	2/05/70	F31	68	FORD	MUSTA	24901	200	6	A	0	0	1	1	1	0	70	25	30.28	3000	B	J034073	
100354	100478	H																						
100364	100431	C	2/06/70	F31	69	FORD	FALCO	9428	200	6	A	0	0	1	1	1	0	70	35	30.30	3000	B	W24457	
100381	100514	C	2/10/70	F31	69	FORD	FALCO	29754	200	6	A	1	0	1	1	1	0	68	20	30.32	3000	B	Z19537	
100381	100525	R	2/11/70	F31	69	FORD	FALCO	29742	200	6	A	1	0	1	1	1	0	71	24	30.23	3000	B	Z19537	
100433	100534	C	2/20/70	F31	68	FORD	FALSW	24373	200	6	A	0	0	1	1	1	0	72	13	30.74	3500	B	S17024	
100501	100630	C	11/05/70	F31	AA	FORD	FAIRL	27657	200	6	0	0	0	1	1	1	0	74	29	30.64	3500	B	K64764	
100339	100458	C	2/02/70	F32	70	FORD	MAVER	13392	201	6	A	0	0	1	1	1	0	68	11	30.11	3000	B	WYA2819	
100382	100516	C	2/10/70	F32	70	FORD	MAVER	5179	201	6	A	0	0	1	1	1	0	71	21	29.90	3000	B	J099274	
100387	100522	C	2/11/70	F32	70	FORD	MAVER	11857	201	6	A	0	0	1	1	1	0	71	24	30.21	3000	B	WY22772	
100387	100523	H																						
100389	100524	C	2/11/70	F32	70	FORD	MAVER	5716	201	6	A	1	0	1	1	1	0	68	20	30.32	3000	B	CF1692	
100388	100633	R	2/12/70	F32	70	FORD	MAVER	5722	201	6	A	0	0	1	1	1	0	70	26	30.00	3000	B	CF1692	
100398	100561	C	2/13/70	F32	70	FORD	MAVER	13902	201	6	A	0	1	0	1	1	1	0	73	21	30.19	3000	B	WY22479
100402	100565	C	2/13/70	F32	70	FORD	MAVER	12371	201	6	A	1	0	1	1	1	0	70	21	30.09	3000	B	P77592	
100405	100549	C	2/14/70	F32	70	FORD	MAVER	10833	201	6	M	0	0	1	1	1	0	69	18	29.99	3000	B	56X348	
100405	100550	H																						
100414	100566	C	2/17/70	F32	70	FORD	MAVER	6482	201	6	A	1	0	1	1	1	0	76	37	29.76	3000	B	W17495	
100429	100590	C	2/20/70	F32	70	FORD	MAVER	12911	201	6	A	0	0	1	1	1	0	72	12	30.75	3000	B	P67594	
100429	100591	H																						
100431	100594	C	2/20/70	F32	70	FORD	MAVER	11797	201	6	M	1	0	1	1	1	0	72	12	30.75	3000	B	W2V896	
100432	100595	C	2/20/70	F32	70	FORD	MAVER	4483	201	6	A	0	0	1	1	1	0	71	12	30.75	3000	B	K2X714	
100444	100611	C	2/23/70	F32	70	FORD	MAVER	5940	201	6	M	0	0	1	1	1	0	74	21	30.49	3000	B	X1P365	
100444	100612	H																						
100445	100614	C	2/23/70	F32	70	FORD	MAVER	5815	201	6	M	0	0	1	1	1	0	72	21	30.49	3000	B	RN2858	
100445	100615	H																						
100446	100616	C	2/23/70	F32	70	FORD	MAVER	3933	201	6	A	1	0	1	1	1	0	73	21	30.49	3000	B	Z8N202	
100447	100619	C	2/23/70	F32	70	FORD	MAVER	5538	201	6	A	1	0	1	1	1	0	72	21	30.49	3000	B	X24089	
100508	101047	C	11/24/70	F32	7[illegible]	FORD	MAVER	7960	200	6	3	1	0	1	1	1	0	72	13	30.35	2500	B	A47828	
100003	100004	C	10/29/69	F33	69	FORD	MUSTA	14417	302	8	A	0	0	2	1	1	0	70	48	30.35	3500	B	P57847	
100003	100005	H																						
100017	100029	C	11/04/69	F33	69	FORD	CUSTO	27889	302	8	A	1	0	2	1	1	0	71	64	30.30	4000	B	WY49114	
100017	100030	H																						
100037	100059	C	11/10/69	F33	69	FORD	TORIN	9021	302	8	A	1	0	2	1	1	0	70	50	29.98	3500	B	098611	
100037	100060	H																						

KANSAS CITY PHASE I — PROCESSING DATE- 01/27/72

COLD START CAR NO	VEHICLE RUN NO	S	INFORMATION --DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100098	100098	C	11/13/69	F33	68	MERC	CYCLO	28657	302	8	A	1	0	2	1	1	0	72	34	30.13	3500	8	ATN906
100099	100097	C	11/14/69	F33	68	MERC	MONTE	11973	302	8	A	1	0	2	1	1	0	69	24	30.24	3500	8	MY32657
100099	100098	H																					
100071	100106	C	11/17/69	F33	68	FORD	FAIRL	30546	302	8	A	0	0	2	1	1	0	78	66	29.85	4000	8	B2R101
100071	100107	H																					
100042	100122	C	11/18/69	F33	68	MERC	MONTE	30001	302	8	A	1	0	2	1	1	0	70	36	30.40	3500	8	J056841
100042	100123	H																					
100088	100129	C	11/19/69	F33	69	FORD	FAIRL	3746	302	8	A	1	0	2	1	1	0	75	21	30.58	3500	8	J033309
100118	100166	C	11/22/69	F33	68	FORD	FAIRL	20611	302	8	A	1	0	2	1	1	0	74	36	30.00	4000	8	J015624
100118	100167	H																					
100144	100200	C	11/28/69	F33	68	FORD	GALAX	34349	302	8	A	1	0	2	1	1	0	70	23	30.49	4000	8	X8P829
100147	100203	C	11/29/69	F33	69	FORD	GALAX	14558	302	8	A	1	0	2	1	1	0	69	23	30.67	4000	8	C8P003
100155	100212	C	12/02/69	F33	68	FORD	GALAX	24004	302	8	A	1	0	2	1	1	0	71	30	30.34	4000	8	J072837
100155	100216	R	12/03/69	F33	68	FORD	GALAX	24010	302	8	A	1	0	2	1	1	0	70	24	30.08	4000	8	J072837
100204	100279	C	12/16/69	F33	68	FORD	CUSTO	41043	302	8	A	0	0	2	1	1	0	70	46	30.26	4000	8	J010647
100204	100280	H																					
100229	100306	C	12/22/69	F33	69	FORD	TORIN	13444	302	8	A	1	0	2	1	1	0	72	25	29.40	4000	8	GE8658
100288	100392	C	1/20/70	F33	69	FORD	MUSTA	5134	302	8	A	1	0	2	1	1	0	71	20	30.40	3500	8	Z8P164
100519	101129	C	12/16/70	F33	69	FORD	CUSTO	11666	302	8	0	0	0	2	1	1	0	74	26	30.33	4000	8	AN4212
100522	101145	C	12/19/70	F33	69	FORD	MUSTA	23794	302	8	0	1	0	2	1	1	0	72	28	30.85	3500	8	YN9903
100192	100209	C	12/01/69	F34	69	FORD	MUSTA	18150	351	8	A	1	0	2	1	1	0	72	32	30.38	3500	8	G1T793
100196	100215	C	12/03/69	F34	69	FORD	LTD	21768	351	8	A	1	0	2	1	1	0	71	25	30.08	4500	8	DG9058
100231	100316	C	12/27/69	F34	69	FORD	STAWA	8152	351	8	A	1	0	2	1	1	0	68	25	29.80	4500	8	J020933
100251	100340	C	1/07/70	F34	69	FORD	MUSTA	6626	351	8	A	1	0	2	1	1	0	69	11	30.11	3500	8	Y3R107
100339	100459	C	2/02/70	F34	69	FORD	FAIRL	8619	351	8	A	1	0	2	1	1	0	68	10	30.30	3500	8	J011319
100361	100487	C	2/06/70	F34	69	MERC	COUGA	7085	351	8	A	1	0	2	1	1	0	70	35	30.32	4000	8	AN4142
100393	100531	C	2/12/70	F34	69	FORD	LTD	9226	351	8	A	1	0	2	1	1	0	68	29	30.24	4500	8	M65778
100393	100532	H																					
100394	100533	C	2/12/70	F34	69	FORD	COUGA	5017	351	8	A	1	0	2	1	1	0	70	29	30.21	4000	8	S5X165
100408	100554	C	2/14/70	F34	69	FORD	COUGA	20133	351	8	A	1	0	2	1	1	0	69	18	29.95	4000	8	X7R122
100408	100634	R	2/16/70	F34	69	FORD	COUGA	20140	351	8	A	1	0	2	1	1	0	71	22	30.28	4000	8	X7R122
100427	100586	C	2/19/70	F34	69	FORD	MUSTA	18868	351	8	A	0	0	2	1	1	0	70	16	30.39	3500	8	AN5734
100427	100587	H																					
100430	100593	C	2/20/70	F34	69	MERC	COUGA	13692	351	8	A	1	0	2	1	1	0	72	12	30.75	4000	8	C9N629
100438	100603	C	2/21/70	F34	69	FORD	MUSTA	12760	351	8	A	1	0	2	1	1	0	72	20	30.59	3500	8	M65294
100439	100604	C	2/21/70	F34	69	FORD	MUSTA	16606	351	8	A	1	0	2	1	1	0	72	20	30.59	3500	8	K9C172
100442	100608	C	2/21/70	F34	69	FORD	MUSTA	14044	351	8	A	0	0	2	1	1	0	72	20	30.45	3500	8	K7T790
100453	100629	C	2/24/70	F34	69	MERC	COUGA	3133	351	8	A	1	0	2	1	1	0	70	37	30.11	4000	8	Y7P332
100524	101196	C	12/22/70	F34	69	FORD	MUSTA	28909	351	8	A	0	0	2	1	1	0	74	22	30.15	3500	8	X45311
100038	100061	C	11/10/69	F35	68	FORD	GALAX	31749	390	8	A	0	0	2	1	1	0	69	54	30.11	4000	8	E05469
100043	100068	C	11/11/69	F35	68	FORD	LTD	23470	390	8	A	1	0	2	1	1	0	68	36	30.03	4000	8	4204
100049	100077	C	11/12/69	F35	68	FORD	STAWA	10678	390	8	A	1	0	2	1	1	0	70	40	30.11	4000	8	K2C753
100066	100099	C	11/14/69	F35	69	FORD	LTD	22079	390	8	A	1	0	2	1	1	0	70	26	30.22	4500	8	E8N282
100066	100100	H																					
100047	100101	C	11/14/69	F35	68	FORD	STAWA	52949	390	8	A	1	0	2	1	1	0	68	25	30.15	4500	8	ZM3654
100069	100104	C	11/14/69	F35	69	FORD	GALAX	8572	390	8	A	1	0	2	1	1	0	70	25	30.10	4500	8	E9P819
100091	100121	C	11/18/69	F35	69	FORD	GALAX	16647	390	8	A	1	0	2	1	1	0	69	36	30.40	4500	8	J045340
100102	100146	C	11/21/69	F35	68	FORD	XL	24215	390	8	A	1	0	2	1	1	0	69	27	30.33	4000	8	ZA7875
100102	100147	H																					
100119	100170	C	11/24/69	F35	68	FORD	XL	40141	390	8	A	0	0	2	1	1	0	69	30	30.63	4000	8	ZM4854
100127	100182	C	11/25/69	F35	69	FORD	STAWA	14265	390	8	A	1	0	2	1	1	0	68	30	30.75	4500	8	P3T933
100153	100210	C	12/02/69	F35	69	FORD	STAWA	21788	390	8	A	1	0	2	1	1	0	71	27	30.38	4500	8	P3Z054
100153	100213	R	12/03/69	F35	69	FORD	STAWA	21794	390	8	A	1	0	2	1	1	0	71	24	30.07	4500	8	P3Z054
100164	100230	C	12/05/69	F35	69	MERC	STAWA	15744	390	8	A	1	0	2	1	1	0	69	23	30.05	4500	8	BT4602
100201	100274	C	12/16/69	F35	69	MERC	STAWA	3139	390	8	A	1	0	2	1	1	0	73	48	30.38	4500	8	J0836
100305	100415	C	1/26/70	F35	68	FORD	GALAX	19574	390	8	A	1	0	2	1	1	0	68	33	30.03	4000	8	Z1N049
100308	100418	C	1/27/70	F35	69	FORD	STAWA	10401	390	8	A	1	0	2	1	1	0	72	30	30.00	4500	8	K4X139
100507	101040	C	11/18/70	F35	69	FORD	LTD	37341	390	8	0	1	0	2	1	1	0	74	33	30.37	4500	8	P54976
100510	101052	C	11/27/70	F35	69	FORD	LTD	23518	390	8	0	1	0	2	1	1	0	70	35	30.48	4500	8	AM7020
100510	101053	H																					
100514	101069	C	12/03/70	F35	68	FORD	STAWA	40079	390	8	0	1	0	2	1	1	0	72	53	30.30	4500	8	J018682
100020	100034	C	11/05/69	F36	68	FORD	THUND	11025	429	8	A	1	0	4	1	1	0	70	37	30.12	5000	8	X1W212
100149	100563	C	2/17/70	F36	68	FORD	THUND	22604	429	8	A	1	0	4	1	1	0	72	22	29.81	5000	8	Z9P620
100352	100474	C	2/05/70	F36	69	FORD	THUND	30612	429	8	A	1	0	4	1	1	0	70	26	30.30	5000	8	WRZ362C
100352	100498	R	2/06/70	F36	68	FORD	THUND	30618	429	8	A	1	0	4	1	1	0	70	35	30.31	5000	8	WRZ362C
100368	100495	C	2/07/70	F36	68	FORD	THUND	42081	429	8	A	1	0	4	1	1	0	69	40	30.16	5000	8	X9P306
100384	100514	C	2/10/70	F36	69	FORD	THUND	6741	429	8	A	1	0	4	1	1	0	70	22	29.89	5000	8	A3T5224
100386	100521	C	2/11/70	F36	69	FORD	THUND	11857	429	8	A	1	0	4	1	1	0	71	24	30.21	5000	8	J050351
100396	100536	C	2/12/70	F36	69	FORD	THUND	18167	429	8	A	1	0	4	1	1	0	70	27	29.98	5000	8	A7P051
100415	100567	C	2/17/70	F36	69	FORD	THUND	28091	429	8	A	1	0	4	1	1	0	73	37	29.71	5000	8	J071264
100418	100569	C	2/17/70	F36	68	FORD	THUND	18864	429	8	A	1	0	4	1	1	0	73	37	29.66	5000	8	WY27397
100418	100569	H																					
100418	100571	C	2/17/70	F36	68	FORD	THUND	32685	429	8	A	1	0	4	1	1	0	72	37	29.59	5000	8	P5T831
100424	100581	C	2/19/70	F36	68	FORD	THUND	29101	429	8	A	1	0	4	1	1	0	72	16	30.39	5000	8	M1Y774
100429	100592	C	2/19/70	F36	69	FORD	THUND	9728	429	8	A	1	0	4	1	1	0	73	16	30.39	5000	8	J016595
100426	100583	C	2/19/70	F36	68	FORD	THUND	23932	429	8	A	1	0	4	1	1	0	72	15	30.39	5000	8	Z6P749
100428	100588	C	2/19/70	F36	69	MERC	MARQU	7753	429	8	A	1	0	4	1	1	0	72	16	30.38	4500	8	J02846
100450	100623	C	2/24/70	F36	69	FORD	STAWA	13299	429	8	A	1	0	4	1	1	0	70	37	30.17	4500	8	934400
100450	100624	H																					
100529	101732	C	1/19/71	F36	69	FORD	THUND	32351	429	8	0	1	0	4	1	1	0	74	78	31.09	5000	8	YP2224
100529	101733	H																					

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSD	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	MP	LIC NO
100330	100393	C	12/22/69	G51	68	CHEV	NOVA	29529	230	6	A	0	0	1	1	1	0	77	20	29.60	3500	8	#2A343
100297	100347	C	1/08/70	G51	68	CHEV	CHEVE	29732	230	6	A	0	0	1	1	1	0	68	8	30.59	3500	8	X55994
100278	100379	C	1/16/70	G51	68	CHEV	CHEVE	19944	230	6	A	1	0	1	1	1	0	77	30	30.15	3500	8	J044185
100330	100447	C	1/30/70	G51	69	CHEV	NOVA	9898	230	6	A	0	0	1	1	1	0	70	24	30.32	3500	8	C25004
100337	100456	C	2/02/70	G51	68	CHEV	NOVA	20112	230	6	A	0	0	1	1	1	0	68	11	30.10	3500	8	F6P148
100337	100457	H																					
100355	100479	C	2/05/70	G51	68	CHEV	CHEVE	19467	230	6	A	0	0	1	1	1	0	70	25	30.27	3500	8	J051660
100356	100480	C	2/05/70	G51	69	CHEV	NOVA	17330	230	6	A	0	0	1	1	1	0	70	25	30.25	3500	8	J095542
100356	100481	H																					
100370	100498	C	2/07/70	G51	68	CHEV	CHEVE	20279	230	6	A	1	0	1	1	1	0	69	40	30.16	3500	8	C3N904
100376	100508	C	2/09/70	G51	69	CHEV	NOVA	10456	230	6	A	0	0	1	1	1	0	69	21	30.37	3500	8	WY30R27
100376	100507	H																					
100407	100553	C	2/14/70	G51	69	CHEV	CHEVE	13447	230	6	A	0	0	1	1	1	0	69	18	29.95	3500	8	E8P015
100407	100562	R	2/16/70	G51	69	CHEV	CHEVE	13453	230	6	A	0	0	1	1	1	0	71	22	30.28	3500	8	E8P015
100422	100578	C	2/18/70	G51	68	CHEV	NOVA	24042	230	6	A	0	0	1	1	1	0	70	31	29.69	3500	8	S6Y615
100422	100579	H																					
100434	100597	C	2/20/70	G51	68	CHEV	NOVA	21937	230	6	A	1	0	1	1	1	0	72	12	30.72	3500	8	P44443
100436	100599	C	2/21/70	G51	68	CHEV	CAMAR	36058	230	6	A	0	0	1	1	1	0	72	20	30.90	3000	8	AM3094
100436	100600	H																					
100443	100609	C	2/23/70	G51	69	CHEV	NOVA	14758	230	6	A	0	0	1	1	1	0	74	21	30.48	3500	8	Z3N313
100443	100607	H																					
100452	100627	C	2/24/70	G51	69	CHEV	NOVA	17627	230	6	A	0	0	1	1	1	0	72	37	30.14	3500	8	K9Y481
100533	101696	C	5/04/71	G51	68	CHEV	NOVA	16518	230	6	A	0	0	1	1	1	0	72	30	29.78	3500	8	KA6846
100072	100109	C	11/17/69	G52	68	CHEV	CAMAR	19140	250	6	A	0	0	1	1	1	0	78	66	29.85	3500	8	M8X210
100344	100465	C	2/03/70	G52	69	CHEV	BISCA	11254	250	6	A	1	0	1	1	1	0	69	18	30.25	4000	8	X35719
100344	100466	H																					
100362	100489	C	2/06/70	G52	68	CHEV	BISCA	26592	250	6	A	0	0	1	1	1	0	70	35	30.30	4000	8	W1Y494
100372	100500	C	2/07/70	G52	68	CHEV	MALIB	21792	250	6	A	0	0	1	1	1	0	69	40	30.19	3500	8	Z7P787
100377	100508	C	2/09/70	G52	68	CHEV	MALIB	23497	250	6	A	0	0	1	1	1	0	70	21	30.36	3500	8	E5P494
100385	100519	C	2/10/70	G52	69	CHEV	IMPAL	4585	250	6	A	1	0	1	1	1	0	70	22	29.90	4000	8	K75082
100385	100520	H																					
100390	100527	C	2/11/70	G52	69	CHEV	NOVA	9802	250	6	A	0	0	1	1	1	0	72	24	30.24	3500	8	K5C217
100395	100534	C	2/12/70	G52	68	CHEV	CAMAR	9356	250	6	A	0	0	1	1	1	0	70	29	30.12	3500	8	M1<983
100395	100539	R	2/13/70	G52	68	CHEV	CAMAR	9362	250	6	A	0	0	1	1	1	0	73	21	30.18	3500	8	M1<983
100409	100555	C	2/14/70	G52	68	CHEV	CAMAR	31649	250	6	A	0	0	1	1	1	0	70	19	29.94	3500	8	G1<173
100409	100556	H																					
100410	100557	C	2/14/70	G52	68	CHEV	CHEVE	17387	250	6	A	0	0	1	1	1	0	70	19	29.93	3500	8	G8X658
100410	100558	H																					
100413	100564	C	2/17/70	G52	68	CHEV	BELAI	34248	250	6	A	0	0	1	1	1	0	72	21	29.78	4000	8	G34824
100413	100565	H																					
100419	100573	C	2/18/70	G52	69	CHEV	NOVA	23192	250	6	A	0	0	1	1	1	0	69	31	29.48	3500	8	W1A163
100419	100574	H																					
100420	100575	C	2/18/70	G52	68	CHEV	BELAI	11554	250	6	A	0	0	1	1	1	0	69	31	29.59	4000	8	AN3405
100420	100576	H																					
100421	100577	C	2/18/70	G52	68	CHEV	NOVA	21376	250	6	A	1	0	1	1	1	0	69	31	29.65	3500	8	J028503
100455	100630	C	2/25/70	G52	68	CHEV	NOVA	21727	250	6	A	0	0	1	1	1	0	74	23	30.37	3500	8	X35240
100455	100631	H																					
100009	100015	C	10/31/69	G53	68	CHEV	IMPA	22366	307	8	A	1	0	2	1	1	0	71	46	30.13	4000	8	W6T544
100009	100016	H																					
100011	100019	C	11/03/69	G53	68	CHEV	MALIB	21320	307	8	A	1	0	2	1	1	0	71	40	30.25	3500	8	X6P441
100011	100020	H																					
100013	100023	C	11/03/69	G53	69	CHEV	CAMAR	9913	307	8	A	1	0	2	1	1	0	71	40	30.23	3500	8	K45178
100014	100024	C	11/04/69	G53	68	CHEV	IMPAL	14902	307	8	A	0	0	2	1	1	0	71	64	30.30	4000	8	WY38672
100014	100025	H																					
100024	100039	C	11/06/69	G53	69	CHEV	MALIB	22604	307	8	A	1	0	2	1	1	0	71	44	29.95	3500	8	P17859
100024	100040	H																					
100028	100045	C	11/07/69	G53	68	CHEV	STAWA	24432	307	8	A	0	0	2	1	1	0	74	50	29.12	4500	8	J038643
100028	100046	H																					
100129	100194	C	11/25/69	G53	69	CHEV	NOVA	10959	307	8	A	1	0	2	1	1	0	69	30	30.74	3500	8	WY14378
100145	100201	C	11/26/69	G53	69	CHEV	IMPAL	23765	307	8	A	1	0	2	1	1	0	71	24	30.49	4000	8	B1A566
100159	100220	C	12/04/69	G53	68	CHEV	STAWA	27429	307	8	A	0	0	2	1	1	0	68	21	30.24	4500	8	A3N859
100159	100223	H																					
100179	100245	C	12/08/69	G53	68	CHEV	IMPAL	16463	307	8	A	1	0	2	1	1	0	70	26	29.80	4000	8	X512179
100191	100257	C	12/10/69	G53	68	CHEV	BISCA	35545	307	8	A	1	0	2	1	1	0	72	36	29.77	4000	8	48X764
100237	100323	C	12/29/69	G53	68	CHEV	IMPAL	19563	307	8	A	1	0	2	1	1	0	70	30	30.05	4000	8	Y15209
100237	100324	H																					
100243	100330	C	12/31/69	G53	69	CHEV	CHEVE	17279	307	8	A	0	0	2	1	1	0	68	20	30.01	3500	8	J027731
100311	100421	C	1/27/70	G53	69	CHEV	MALIB	14187	307	8	A	0	0	2	1	1	0	72	31	29.84	3500	8	AL9817
100397	100442	C	2/05/70	G53	68	CHEV	BISCA	38932	307	8	A	0	0	2	1	1	0	70	25	30.25	4000	8	X10848
100437	100601	C	2/21/70	G53	68	CHEV	BELAI	11578	307	8	A	1	0	2	1	1	0	72	20	30.90	4000	8	AM3091
100437	100602	H																					
100437	100617	R	2/23/70	G53	68	CHEV	BELAI	11584	307	8	A	1	0	2	1	1	0	73	21	30.47	4000	8	AM3091
100503	101034	C	11/17/70	G53	68	CHEV	CHEVE	30524	307	8	0	0	0	2	1	1	0	74	30	30.43	3500	8	PY5282
100060	100083	C	11/10/69	G54	68	CHEV	IMPA	20745	327	8	A	0	0	4	1	1	0	69	94	30.11	4000	8	W7X548
100060	100084	H																					
100061	100085	C	11/11/69	G54	68	CHEV	IMPAL	23034	327	8	A	1	0	4	1	1	0	68	36	30.03	4000	8	F6P534
100061	100086	H																					
100084	100091	C	11/13/69	G54	68	CHEV	STAWA	21991	327	8	A	1	0	4	1	1	0	71	28	30.18	4500	8	W1A548
100084	100092	H																					
100085	100093	C	11/14/69	G54	68	CHEV	IMPAL	21969	327	8	A	1	0	4	1	1	0	69	24	30.25	4000	8	F6A527

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSD	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	WP	LIC NO
100088	100102	C	11/14/69	G54	68	CHEV	STAWA	16986	327	8	A	1	0	4	1	1	0	68	25	30.13	4500	8	522FR
100088	100103	H																					
100087	100128	C	11/19/69	G54	68	CHEV	IMPAL	16099	327	8	A	1	0	4	1	1	0	75	21	30.60	4000	8	C3A909
100093	100135	C	11/20/69	G54	68	CHEV	IMPAL	16331	327	8	A	1	0	4	1	1	0	70	24	30.61	4000	8	J048039
100104	100149	C	11/21/69	G54	68	CHEV	MALIB	25935	327	8	A	1	0	4	1	1	0	72	28	30.31	3500	8	J079140
100141	100197	C	11/28/69	G54	68	CHEV	IMPAL	21874	327	8	A	1	0	4	1	1	0	68	23	30.65	4000	8	J074944
100149	100204	C	12/01/69	G54	68	CHEV	STAWA	13284	327	8	A	1	0	4	1	1	0	70	29	30.57	4500	8	J021711
100172	100237	C	12/05/69	G54	68	CHEV	RELAI	22614	327	8	A	1	0	4	1	1	0	70	24	30.00	4500	8	J029961
100183	100249	C	12/08/69	G54	68	CHEV	IMPAL	17803	327	8	A	1	0	4	1	1	0	71	51	29.93	4000	8	M8X034
100192	100258	C	12/10/69	G54	68	CHEV	IMPAL	17102	327	8	A	1	0	4	1	1	0	70	36	29.77	4000	8	G8X600
100198	100269	C	12/11/69	G54	68	CHEV	STAWA	45915	327	8	A	1	0	4	1	1	0	70	26	30.07	4500	8	M1Y976
100198	100271	H																					
100199	100272	C	12/15/69	G54	68	CHEV	IMPAL	12011	327	8	A	1	0	4	1	1	0	68	32	30.35	4000	8	ZP2254
100199	100275	R	12/16/69	G54	68	CHEV	IMPAL	12017	327	8	A	1	0	4	1	1	0	73	48	30.36	4000	8	ZP2254
100211	100291	C	12/18/69	G54	68	CHEV	CAPRI	26821	327	8	A	1	0	4	1	1	0	68	30	30.27	4000	8	M5S946
100509	101049	C	11/24/70	G54	68	CHEV	IMPAL	25995	327	8	O	1	0	2	1	1	0	72	14	30.73	4000	8	Y4P493
100517	101116	C	12/14/70	G54	68	CHEV	IMPAL	39686	327	8	O	1	0	4	1	1	0	75	23	30.79	4000	8	PT8094
100008	100009	C	10/30/69	G55	69	CHEV	STAWA	17204	350	8	A	1	0	4	1	1	0	70	47	30.13	4000	8	PW1462
100008	100010	H																					
100093	100081	C	11/12/69	G55	69	CHEV	STAWA	9131	350	8	A	1	0	4	1	1	0	70	40	30.03	4500	8	J010448
100062	100093	C	11/13/69	G55	69	CHEV	KINGS	6370	350	8	A	1	0	4	1	1	0	72	34	30.10	4500	8	P3T500
100062	100094	H																					
100131	100186	C	11/25/69	G55	69	CHEV	STAWA	9572	350	8	A	1	0	4	1	1	0	70	25	30.70	4000	8	A4P687
100137	100193	C	11/26/69	G55	69	CHEV	MALIB	21345	350	8	A	1	0	4	1	1	0	70	28	30.56	3500	8	A2P470
100151	100207	C	12/01/69	G55	69	CHEV	IMPAL	22475	350	8	A	1	0	4	1	1	0	71	30	30.40	4000	8	J010851
100151	100208	H																					
100215	100295	C	12/20/69	G55	69	CHEV	IMPAL	4567	350	8	A	1	0	4	1	1	0	68	30	30.15	4000	8	C3A857
100216	100296	C	12/20/69	G55	69	CHEV	STAWA	27272	350	8	A	1	0	4	1	1	0	69	29	30.15	4500	8	Y5A313
100216	100296	H																					
100235	100321	C	12/29/69	G55	69	CHEV	IMPAL	16288	350	8	A	1	0	4	1	1	0	70	31	30.15	4000	8	Y5P043
100264	100356	C	1/10/70	G55	69	CHEV	MALIB	21842	350	8	A	1	0	4	1	1	0	72	19	29.91	3500	8	CM1204
100264	100357	H																					
100276	100376	C	1/13/70	G55	69	CHEV	MALIB	30052	350	8	A	1	0	4	1	1	0	73	24	30.10	3500	8	G5P418
100280	100380	C	1/16/70	G55	69	CHEV	IMPAL	3791	350	8	A	1	0	4	1	1	0	72	30	30.24	4000	8	C6P086
100280	100381	H																					
100282	100383	C	1/16/70	G55	69	CHEV	IMPAL	27599	350	8	A	1	0	4	1	1	0	72	30	30.21	4000	8	98M734
100282	100384	H																					
100318	100430	C	1/28/70	G55	69	CHEV	CAPRI	7296	350	8	A	1	0	4	1	1	0	72	41	29.40	4000	8	B1R183
100375	100504	C	2/09/70	G55	69	CHEV	CHEVE	11227	350	8	A	0	0	4	1	1	0	69	21	30.38	3500	8	A7N892
100375	100505	H																					
100375	100515	R	2/10/70	G55	69	CHEV	CHEVE	11233	350	8	A	0	0	4	1	1	0	72	22	29.93	3500	8	A7N892
100531	101523	C	3/19/71	G55	69	CHEV	CHEVE	13013	350	8	O	1	0	4	1	1	0	73	20	29.99	3500	8	P54723
100001	100001	C	10/28/69	G56	69	CHEV	CHEVE	15227	396	8	A	0	0	4	1	1	0	72	46	30.55	3500	8	K7T998
100001	100002	H																					
100030	100044	C	11/07/69	G56	68	CHEV	CAPRI	23489	396	8	A	1	0	4	1	1	0	74	50	30.07	4500	8	S4A294
100030	100049	H																					
100247	100335	C	1/02/70	G56	68	CHEV	CAPRI	36113	396	8	A	1	0	4	1	1	0	68	20	30.10	4500	8	S1Y551
100296	100404	C	1/23/70	G56	68	CHEV	CHEVE	33349	396	8	A	1	0	4	1	1	0	75	31	30.10	4000	8	E7P867
100312	100422	C	1/27/70	G56	69	CHEV	CHEVE	9012	396	8	A	1	0	4	1	1	0	72	30	29.75	4000	8	G65271
100324	100439	C	1/29/70	G56	69	CHEV	SS	10016	396	8	A	1	0	4	1	1	0	68	20	30.32	4000	8	J0209
100324	100440	H																					
100336	100455	C	2/02/70	G56	69	CHEV	CHEVE	12992	396	8	A	1	0	4	1	1	0	68	11	30.10	4000	8	C9N902
100346	100468	C	2/04/70	G56	69	CHEV	CHEVE	10157	396	8	A	1	0	4	1	1	0	68	18	29.76	4000	8	J080895
100350	100472	C	2/04/70	G56	69	CHEV	STAWA	5766	396	8	A	1	0	4	1	1	0	69	18	29.84	4500	8	WY13287
100365	100492	C	2/06/70	G56	69	CHEV	CAPRI	24923	396	8	A	1	0	4	1	1	0	70	34	30.25	4500	8	C9R282
100378	100509	C	2/09/70	G56	69	CHEV	IMPAL	14062	396	8	A	1	0	4	1	1	0	70	21	30.35	4500	8	J073490
100389	100526	C	2/11/70	G56	68	CHEV	IMPAL	39908	396	8	A	0	0	4	1	1	0	71	24	30.23	4500	8	P5Y396
100389	100537	R	2/12/70	G56	68	CHEV	IMPAL	39914	396	8	A	1	0	4	1	1	0	70	28	29.96	4500	8	P5Y396
100391	100528	C	2/11/70	G56	69	CHEV	CHEVE	14247	396	8	A	1	0	4	1	1	0	68	24	30.25	4000	8	G5T876
100400	100542	C	2/13/70	G56	63	CHEV	STAWA	19345	396	8	A	1	0	4	1	1	0	71	21	30.14	4500	8	J085177
100454	100629	C	2/24/70	G56	69	CHEV	SS	20299	396	8	A	1	0	4	1	1	0	70	36	30.09	4000	8	J010005
100004	100006	C	10/29/69	G61	69	PONT	FIREB	19335	350	8	A	0	0	2	1	1	0	69	35	30.25	3500	8	D522T
100004	100007	H																					
100005	100017	C	10/31/69	G61	69	PONT	LEMAN	7376	350	8	A	1	0	2	1	1	0	71	46	30.13	4000	8	M1W415
100005	100019	H																					
100115	100164	C	11/22/69	G61	69	PONT	CUSTO	13421	350	8	A	1	0	2	1	1	0	72	34	30.00	4000	8	K3X020
100115	100165	H																					
100129	100179	C	11/24/69	G61	69	PONT	LEMAN	12097	350	8	A	1	0	2	1	1	0	71	36	30.47	4000	8	J036249
100129	100180	H																					
100171	100234	C	11/05/69	G61	69	PONT	LEMAN	13015	350	8	A	1	0	2	1	1	0	70	24	30.00	4000	8	J011347
100173	100239	C	12/05/69	G61	69	PONT	LEMAN	22063	350	8	A	1	0	2	1	1	0	70	24	30.00	4000	8	A4N624
100219	100299	C	12/20/69	G61	68	PONT	FIREA	19229	350	8	A	1	0	2	1	1	0	70	26	29.91	3500	8	WY10317
100230	100315	C	12/27/69	G61	64	PONT	TEMPE	11529	350	8	A	1	0	2	1	1	0	68	25	29.81	4000	8	WY975
100234	100320	C	12/29/69	G61	63	PONT	FIREA	25863	350	8	A	1	0	2	1	1	0	70	31	30.15	4000	8	P1W338
100240	100327	C	12/30/69	G61	68	PONT	TEMPE	14967	350	8	A	1	0	2	1	1	0	70	30	30.00	4000	8	J047909
100267	100342	C	1/10/70	G61	64	PONT	TEMPE	15641	350	8	A	1	0	2	1	1	0	72	19	29.79	4000	8	J043662
100267	100343	H																					
100272	100370	C	1/12/70	G61	68	PONT	LEMAN	22915	350	8	A	1	0	2	1	1	0	73	22	30.13	4000	8	J039227
100272	100371	H																					
100273	100372	C	1/12/70	G61	69	PONT	TEMPE	27116	350	8	A	1	0	2	1	1	0	69	22	30.14	4000	8	X4R446
100273	100373	H																					

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKR	MODEL	ODOMR	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	MIN	BAROM	INRT	NP	LIC NO
100279	100379	C	1/16/70	G61	69	PONT	LEMAN	17150	350	8	A	1	0	2	1	1	0	72	30	30.23	4000	8	J011399
100279	100389	R	1/19/70	G61	69	PONT	LEMAN	17156	350	8	A	1	0	2	1	1	0	68	48	30.33	4000	8	J011399
100497	100613	C	2/23/70	GA1	69	PONT	FIREH	10494	350	8	A	1	0	2	1	1	0	76	30	30.43	3500	8	J010819
100502	101035	C	11/17/70	G61	68	PONT	LEMAN	29741	350	8	O	1	0	2	1	1	0	74	21	30.49	3500	8	K5C644
100506	101041	C	11/19/70	GA1	69	PONT	LEMAN	21771	350	8	O	1	0	2	1	1	0	74	33	30.37	4000	8	SW5918
100516	101081	C	12/07/70	G61	68	PONT	LEMAN	29082	350	8	O	1	0	2	1	1	0	70	20	30.78	3500	8	RL9714
100516	101082	H																					
100015	100026	C	11/04/69	G62	69	PONT	CATA	29961	400	8	A	1	0	2	1	1	0	71	44	30.30	4500	8	F5T191
100019	100027	H																					
100023	100038	C	11/06/69	G62	68	PONT	GTO	18235	400	8	A	1	0	2	1	1	0	71	44	28.98	4000	8	J044231
100027	100044	C	11/06/69	G62	69	PONT	CATAL	22368	400	8	A	1	0	2	1	1	0	75	49	28.90	4500	8	J071291
100045	100071	C	11/11/69	G62	69	PONT	CATAL	7176	400	8	A	1	0	2	1	1	0	74	46	30.00	4500	8	M65310
100045	100072	H																					
100050	100078	C	11/12/69	G62	68	PONT	EXECU	42905	400	8	A	1	0	2	1	1	0	70	40	30.09	4500	8	J0474
100087	100087	C	11/13/69	G62	68	PONT	CATAL	71130	400	8	A	1	0	2	1	1	0	72	34	30.12	4000	8	P6W389
100124	100178	C	11/24/69	G62	69	PONT	CATAL	16267	400	8	A	1	0	2	1	1	0	72	34	30.49	4500	8	C5R309
100163	100259	C	12/10/69	G62	69	PONT	CATAL	14120	400	8	A	1	0	2	1	1	0	70	36	29.71	4500	8	Y2R401
100193	100260	H																					
100194	100261	C	12/10/69	G62	69	PONT	CATAL	12609	400	8	A	1	0	2	1	1	0	70	38	29.69	4500	8	J041193
100194	100262	H																					
100203	100278	C	12/16/69	G62	69	PONT	STAWA	11369	400	8	A	1	0	2	1	1	0	70	46	30.32	5000	8	4269249
100214	100294	C	12/19/69	G62	69	PONT	EXECU	3780	400	8	A	1	0	2	1	1	0	69	24	30.40	4500	8	J011177
100219	100301	C	12/20/69	G62	69	PONT	CATAL	12718	400	8	A	1	0	2	1	1	0	70	29	29.92	4500	8	P8W145
100233	100319	C	12/27/69	G62	68	PONT	STAWA	24572	400	8	A	1	0	2	1	1	0	70	30	29.70	4500	8	P8W492
100233	100319	H																					
100242	100329	C	12/31/69	G62	69	PONT	CATAL	3620	400	8	A	1	0	2	1	1	0	68	20	30.01	4500	8	J058752
100293	100398	C	1/22/70	G62	68	PONT	CATAL	43465	400	8	A	1	0	2	1	1	0	70	19	29.75	4000	8	J011062
100293	100401	R	1/23/70	G62	68	PONT	CATAL	43471	400	8	A	1	0	2	1	1	0	76	30	30.02	4000	8	J011062
100302	100411	C	1/24/70	G62	68	PONT	CATAL	20390	400	8	A	1	0	2	1	1	0	75	31	29.70	4000	8	A2P737
100302	100412	H																					
100515	101044	C	12/02/70	G62	69	PONT	CATAL	28685	400	8	O	1	0	2	1	1	0	70	31	30.73	4500	8	J072691
100515	101065	H																					
100525	101186	C	1/06/71	G62	68	PONT	EXECU	46020	400	8	O	1	0	2	1	1	0	70	27	31.14	4500	8	AL8799
100526	101190	C	1/08/71	GA2	69	PONT	GTO	23566	400	8	O	1	0	2	1	1	0	72	29	30.43	4000	8	CN3972
100019	100032	C	11/05/69	G63	69	PONT	CATAL	17800	428	8	A	1	0	4	1	1	0	70	37	30.12	4500	8	P1Z964
100019	100033	H																					
100031	100050	C	11/07/69	G63	69	PONT	BONNE	9874	428	8	A	1	0	4	1	1	0	75	54	30.05	4500	8	C1P814
100134	100149	C	11/26/69	G63	69	PONT	BONNE	13193	428	8	A	1	0	4	1	1	0	69	27	30.61	4500	8	X9P777
100209	100288	C	12/18/69	G63	69	PONT	GRAND	7149	428	8	A	1	0	4	1	1	0	70	32	30.27	4000	8	J0229729
100241	100328	C	12/30/69	G63	68	PONT	BONNE	23477	428	8	A	1	0	4	1	1	0	70	30	30.00	4500	8	J058828
100249	100337	C	1/07/70	G63	69	PONT	BONNE	17047	428	8	A	1	0	4	1	1	0	68	10	30.37	4500	8	K1C291
100249	100338	H																					
100253	100342	C	1/07/70	G63	69	PONT	BONNE	21935	428	8	A	1	0	4	1	1	0	68	10	30.33	4500	8	K6C075
100290	100395	C	1/21/70	G63	69	PONT	BONNE	14216	428	8	A	1	0	4	1	1	0	68	14	30.66	4500	8	P9T496
100316	100427	C	1/28/70	G63	69	PONT	BONNE	9696	428	8	A	1	0	4	1	1	0	72	41	29.34	4500	8	J087383
100316	100428	H																					
100335	100453	C	2/02/70	G63	69	PONT	BONNE	12452	428	8	A	1	0	4	1	1	0	68	11	30.07	4500	8	J080065
100335	100454	H																					
100380	100512	C	2/09/70	G63	69	PONT	BONNE	10457	428	8	A	1	0	4	1	1	0	68	20	30.32	4500	8	Y9P107
100380	100513	R	2/10/70	G63	69	PONT	BONNE	10463	428	8	A	1	0	4	1	1	0	72	22	29.93	4500	8	Y9P107
100383	100517	C	2/10/70	G63	69	PONT	BONNE	41610	428	8	A	1	0	4	1	1	0	70	22	29.89	4500	8	MY26165
100392	100529	C	2/12/70	G63	69	PONT	BONNE	8461	428	8	A	1	0	4	1	1	0	68	29	30.26	4500	8	E3A306
100392	100530	H																					
100449	100621	C	2/24/70	G63	69	PONT	GRAND	22648	428	8	A	1	0	4	1	1	0	70	37	30.16	4000	8	AT6955
100449	100622	H																					
100451	100625	C	2/24/70	G63	69	PONT	GRAND	28930	428	8	A	1	0	4	1	1	0	72	37	30.16	4000	8	X6R690
100451	100626	H																					
100527	101193	C	1/09/71	G63	69	PONT	STAWA	23719	428	8	O	1	0	4	1	1	0	75	28	30.25	5000	8	J0R251
100021	100035	C	11/05/69	G66	68	OLDS	CUTLA	18995	350	8	A	1	0	2	1	1	0	70	37	30.12	4000	8	K3A503
100025	100041	C	11/06/69	G66	69	OLDS	CUTLA	9819	350	8	A	1	0	2	1	1	0	75	49	28.90	4000	8	SG14805
100064	100096	C	11/14/69	G66	69	OLDS	CUTLA	2457	350	8	O	1	0	2	1	1	0	69	24	30.25	4000	8	J092269
100075	100112	C	11/17/69	G66	69	OLDS	CUTLA	24271	350	8	A	1	0	2	1	1	0	74	60	29.81	4000	8	CM6142
100084	100136	C	11/20/69	G66	68	OLDS	STAWA	20010	350	8	A	1	0	2	1	1	0	70	24	30.60	4500	8	ZM7210
100085	100137	C	11/20/69	G66	69	OLDS	CUTLA	3933	350	8	A	1	0	2	1	1	0	70	24	30.60	4000	8	K55349
100113	100162	C	11/22/69	G66	68	OLDS	CUTLA	19834	350	8	A	1	0	2	1	1	0	73	32	30.08	4000	8	J080246
100123	100177	C	11/24/69	G66	69	OLDS	CUTLA	8475	350	8	A	1	0	2	1	1	0	72	34	30.49	4000	8	K75533
100160	100222	C	12/04/69	G66	69	OLDS	CUTLA	28917	350	8	A	1	0	2	1	1	0	70	22	30.24	4000	8	G2T142
100160	100223	H																					
100168	100232	C	12/05/69	G66	69	OLDS	DELTA	8861	350	8	A	1	0	2	1	1	0	69	24	30.03	4500	8	P5Y285
100175	100241	C	12/06/69	G66	69	OLDS	DELTA	5881	350	8	A	1	0	2	1	1	0	69	25	29.87	4500	8	M55511
100184	100250	C	12/08/69	G66	68	OLDS	CUTLA	7155	350	8	A	1	0	2	1	1	0	70	51	29.92	4000	8	P3H716
100236	100322	C	12/29/69	G66	69	OLDS	CUTLA	5849	350	8	A	1	0	2	1	1	0	70	30	30.05	4000	8	E7R377
100246	100334	C	1/02/70	G66	69	OLDS	SW	4557	350	8	A	1	0	2	1	1	0	68	20	30.10	4000	8	Z2M992
100285	100389	C	1/19/70	G66	68	OLDS	CUTLA	21295	350	8	A	1	0	2	1	1	0	72	47	30.21	4000	8	J081181
100303	100545	C	2/19/70	G66	69	OLDS	CUTLA	9462	350	8	A	1	0	2	1	1	0	70	16	30.39	4000	8	Z1M739
100303	100389	R	2/20/70	G6A	69	OLDS	CUTLA	9464	350	8	A	1	0	2	1	1	0	74	12	30.73	4000	8	Z1M739
100349	100496	C	2/27/70	G66	68	OLDS	STAWA	26956	350	8	A	1	0	2	1	1	0	69	40	30.16	4500	8	C8P693
100349	100497	H																					
100505	101037	C	11/18/70	G66	69	OLDS	CUTLA	14564	350	8	O	1	0	2	1	1	0	74	33	30.39	4000	8	RL8392
100092	100134	C	11/20/69	G67	69	OLDS	NINET	7832	455	8	A	1	0	4	1	1	0	69	24	30.61	4500	8	9680

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100178	100242	C	12/06/69	G67	69	OLDS	NINFT	21997	455	8	A	1	0	4	1	1	0	69	25	29.86	4500	8	YBP921
100287	100391	C	1/20/70	G67	69	OLDS	NINFT	12270	455	8	A	1	0	4	1	1	0	71	19	30.37	4500	8	JOA6167
100314	100424	C	1/27/70	G67	68	OLDS	NINFT	19823	455	8	A	1	0	4	1	1	0	70	30	29.65	4500	8	Y1P002
100320	100433	C	1/28/70	G67	68	OLDS	NINFT	19336	455	8	A	1	0	4	1	1	0	72	41	29.40	4500	8	Y6P959
100332	100449	C	1/31/70	G67	69	OLDS	NINFT	18020	455	8	A	1	0	4	1	1	0	75	25	30.12	4500	8	WY11130
100332	100450	H																					
100343	100464	C	2/03/70	G67	69	OLDS	NINFT	21357	455	8	A	1	0	4	1	1	0	68	18	30.13	4500	8	J07287
100363	100490	C	2/06/70	G67	69	OLDS	NINFT	19863	455	8	A	1	0	4	1	1	0	70	35	30.30	4500	8	365992
100364	100493	C	2/06/70	G67	68	OLDS	NINFT	20423	455	8	A	1	0	4	1	1	0	70	35	30.25	4500	8	J075056
100371	100499	C	2/07/70	G67	68	OLDS	NINFT	25269	455	8	A	1	0	4	1	1	0	69	40	30.15	4500	8	425762
100373	100501	C	2/07/70	G67	69	OLDS	DELTA	14024	455	8	A	1	0	4	1	1	0	69	40	30.15	4500	8	DP1780
100379	100510	C	2/09/70	G67	69	OLDS	NINFT	15154	455	8	A	1	0	4	1	1	0	68	22	30.34	4500	8	AP4014
100379	100511	H																					
100399	100540	C	2/13/70	G67	68	OLDS	DELTA	16869	455	8	A	1	0	4	1	1	0	72	21	30.18	4500	8	XBR387
100448	100619	C	2/23/70	G67	69	OLDS	NINFT	17720	455	8	A	1	0	4	1	1	0	72	22	30.26	4500	8	49P699
100448	100620	R	2/24/70	G67	69	OLDS	NINFT	17726	455	8	A	1	0	4	1	1	0	70	37	30.16	4500	8	59P698
100456	100632	C	2/25/70	G67	69	OLDS	NINFT	19565	455	8	A	1	0	4	1	1	0	74	23	30.42	4500	8	WY37311
100014	100029	C	11/04/69	G71	68	BUIC	LESAB	37835	350	8	A	1	0	4	1	1	0	71	64	30.30	4500	8	J011323
100018	100031	C	11/05/69	G71	68	BUIC	LESAB	48938	350	8	A	1	0	4	1	1	0	70	37	30.12	4500	8	S6W102
100042	100067	C	11/11/69	G71	68	BUIC	LESAB	28673	350	8	A	1	0	4	1	1	0	68	36	30.03	4500	8	G3A743
100070	100105	C	11/14/69	G71	68	BUIC	LESAB	44920	350	8	A	1	0	4	1	1	0	70	25	30.10	4500	8	ZL7515
100103	100148	C	11/21/69	G71	69	BUIC	LESAB	14970	350	8	A	1	0	4	1	1	0	71	28	30.33	4500	8	J095955
100136	100191	C	11/26/69	G71	68	BUIC	SKYLA	18508	350	8	A	1	0	4	1	1	0	70	28	30.60	4000	8	P57275
100136	100192	H																					
100154	100211	C	12/02/69	G71	69	BUIC	LESAB	9457	350	8	A	1	0	4	1	1	0	71	28	30.36	4500	8	P8Y163
100154	100214	R	12/03/69	G71	69	BUIC	LESAB	9463	350	8	A	1	0	4	1	1	0	71	24	30.07	4500	8	P8Y163
100178	100244	C	12/06/69	G71	68	BUIC	LESAB	22365	350	8	A	1	0	4	1	1	0	70	26	29.80	4500	8	S7T138
100185	100251	C	12/08/69	G71	68	BUIC	LESAB	13120	350	8	A	1	0	4	1	1	0	70	52	29.90	4500	8	Y1T663
100207	100285	C	12/17/69	G71	69	BUIC	GS	37595	350	8	A	1	0	4	1	1	0	70	28	30.31	4000	8	J033444
100221	100304	C	12/22/69	G71	69	BUIC	LESAB	13137	350	8	A	1	0	4	1	1	0	72	20	29.50	4500	8	Y4P731
100254	100343	C	1/07/70	G71	68	BUIC	LESAB	13420	350	8	A	1	0	4	1	1	0	68	10	30.35	4500	8	Z8W780
100300	100409	C	1/24/70	G71	68	BUIC	LESAB	32251	350	8	A	1	0	4	1	1	0	76	31	29.72	4500	8	J031849
100304	100414	C	1/26/70	G71	69	BUIC	STAWA	5274	350	8	A	1	0	4	1	1	0	68	30	29.98	4500	8	S3X216
100327	100444	C	1/30/70	G71	69	BUIC	LESAB	7656	350	8	A	1	0	4	1	1	0	73	24	30.41	4500	8	WY24464
100529	101361	C	2/16/71	G71	68	BUIC	LESAB	42407	350	8	O	1	0	4	1	1	0	76	16	29.65	4500	8	XZ8776
100529	101362	H																					
100091	100133	C	11/19/69	G72	69	BUIC	RIVIE	3424	430	8	A	1	0	4	1	1	0	72	22	30.52	4500	8	C2N887
100099	100141	C	11/20/69	G72	69	BUIC	ELECT	27322	430	8	A	1	0	4	1	1	0	71	28	30.53	4500	8	M2W402
100225	100309	C	12/23/69	G72	69	BUIC	WILDC	7892	430	8	A	1	0	4	1	1	0	71	35	29.80	4500	8	J011137
100225	100310	H																					
100259	100350	C	1/09/70	G72	69	BUIC	WILDC	30485	430	8	A	1	0	4	1	1	0	68	13	30.53	4500	8	WY33147
100261	100352	C	1/09/70	G72	68	BUIC	ELECT	9428	430	8	A	1	0	4	1	1	0	68	14	30.52	4500	8	X5T426
100262	100353	C	1/09/70	G72	68	BUIC	ELECT	36463	430	8	A	1	0	4	1	1	0	68	14	30.50	4500	8	364849
100294	100399	C	1/22/70	G72	69	BUIC	WILDC	7297	430	8	A	1	0	4	1	1	0	68	20	29.74	4500	8	59P190
100294	100400	R	1/23/70	G72	69	BUIC	WILDC	7303	430	8	A	1	0	4	1	1	0	77	30	30.01	4500	8	59P190
100307	100417	C	1/26/70	G72	68	BUIC	LESAB	38400	430	8	A	1	0	4	1	1	0	68	31	29.97	4500	8	A6N082
100315	100425	C	1/28/70	G72	68	BUIC	WILDC	27231	430	8	A	1	0	4	1	1	0	72	41	29.25	4500	8	P8N076
100315	100426	H																					
100317	100429	C	1/28/70	G72	69	BUIC	WILDC	20796	430	8	A	1	0	4	1	1	0	72	41	29.40	4500	8	J011459
100323	100438	C	1/29/70	G72	69	BUIC	ELECT	46094	430	8	A	1	0	4	1	1	0	68	20	30.32	4500	8	A9C471
100329	100446	C	1/30/70	G72	69	BUIC	ELECT	89769	430	8	A	1	0	4	1	1	0	73	24	30.38	4500	8	SG11625
100331	100448	C	1/30/70	G72	69	BUIC	RIVIE	25361	430	8	A	1	0	4	1	1	0	69	24	30.32	4500	8	J090672
100341	100461	C	2/03/70	G72	68	BUIC	ELECT	9226	430	8	A	1	0	4	1	1	0	68	18	30.35	4500	8	B9M822
100341	100462	H																					
100360	100486	C	2/06/70	G72	68	BUIC	WILDC	41981	430	8	A	1	0	4	1	1	0	68	35	30.31	4500	8	G37667
100532	101670	C	4/26/71	G72	68	BUIC	ELECT	37621	430	8	O	1	0	4	1	1	0	75	33	29.71	4500	8	96L387
100532	101671	H																					
100099	100130	C	11/19/69	G76	69	CADI	DEVIL	17042	472	8	A	1	0	4	1	2	0	75	21	30.58	5000	8	WY62850
100157	100217	C	12/03/69	G76	68	CADI	DEVIL	33162	472	8	A	1	0	4	1	2	0	71	25	30.07	5000	8	WY7778
100157	100218	H																					
100199	100255	C	12/09/69	G76	69	CADI	SEDAN	9276	472	8	A	1	0	4	1	2	0	71	40	29.77	5000	8	W9X864
100227	100312	C	12/23/69	G76	68	CADI	DEVIL	30155	472	8	A	1	0	4	1	2	0	69	25	29.85	5000	8	W6Z236
100245	100333	C	1/02/70	G76	69	CADI	ELERT	16412	472	8	A	1	0	4	1	2	0	68	20	30.10	5000	8	AJ1700
100291	100396	C	1/22/70	G76	68	CADI	COUPE	33429	472	8	A	1	0	4	1	2	0	70	19	29.80	5000	8	Y8C313
100313	100423	C	1/27/70	G76	68	CADI	DEVIL	21565	472	8	A	1	0	4	1	2	0	70	30	29.65	5000	8	32Y554
100340	100460	C	2/03/70	G76	68	CADI	DEVIL	32937	472	8	A	1	0	4	1	2	0	68	18	30.35	5000	8	J080957
100349	100467	C	2/04/70	G76	69	CADI	DEVIL	14923	472	8	A	1	0	4	1	2	0	68	18	29.75	5000	8	Y1T199
100351	100473	C	2/05/70	G76	69	CADI	COUPE	12365	472	8	A	1	0	4	1	2	0	72	26	30.28	5000	8	AM1841
100347	100494	C	2/07/70	G76	69	CADI	SEDAN	5635	472	8	A	1	0	4	1	2	0	69	40	30.16	5000	8	J012787
100367	100502	R	2/09/70	G76	69	CADI	SEDAN	5641	472	8	A	1	0	4	1	2	0	68	21	30.34	5000	8	J012787
100397	100538	C	2/13/70	G76	68	CADI	DEVIL	30354	472	8	A	1	0	4	1	2	0	73	21	30.18	5000	8	J060449
100406	100548	C	2/14/70	G76	69	CADI	CALAI	7705	472	8	A	1	0	4	1	2	0	68	18	29.99	5000	8	J085176
100411	100559	C	2/16/70	G76	68	CADI	DEVIL	22421	472	8	A	1	0	4	1	2	0	72	22	30.30	5000	8	J058823
100423	100580	C	2/19/70	G76	69	CADI	DEVIL	29417	472	8	A	1	0	4	1	2	0	75	16	30.37	5000	8	Y19278
100006	100011	C	10/31/69	V81	69	VOLK	STAND	7611	91	4	4	1	0	1	1	1	0	71	46	30.07	2000	4	109148
100006	100012	H																					
100010	100013	C	10/31/69	V81	69	VOLK	STAND	3973	91	4	4	0	0	1	1	1	0	71	46	30.07	2000	4	LC2241
100010	100014	H																					
100034	100054	C	11/07/69	V81	69	VOLK	STAND	5107	91	4	A	0	0	1	1	1	0	75	54	30.03	2000	4	J029627
100055	100083	C	11/12/69	V81	69	VOLK	STAND	10955	91	4	A	0	0	1	1	1	0	70	40	30.03	2000	4	5AA341

KANSAS CITY PHASE I — PROCESSING DATE= 03/27/72

COLD START VEHICLE INFORMATION																									
CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSD	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100077	100115	C	11/17/69	V81	68	VOLK	STAND	11219	91	4	M	0	0	1	1	1	0	74	60	29.77	2000	4	K85728
100100	100143	C	11/20/69	V81	68	VOLK	STAND	33571	91	4	M	0	0	1	1	1	0	71	29	30.50	2000	4	Y4P276
100100	100144	H																					
100109	100155	C	11/21/69	V81	68	VOLK	STAND	20148	91	4	M	0	0	1	1	1	0	72	37	30.22	2000	4	Y50410
100109	100156	H																					
100118	100149	C	11/22/69	V81	68	VOLK	STAND	15139	91	4	M	0	0	1	1	1	0	74	36	29.99	2000	4	93W787
100126	100181	C	11/25/69	V81	68	VOLK	STAND	30002	91	4	M	0	0	1	1	1	0	68	29	30.75	2000	4	C7N091
100146	100202	C	11/28/69	V81	68	VOLK	STAND	10901	91	4	M	0	0	1	1	1	0	71	24	30.47	2000	4	G45527
100158	100219	C	12/03/69	V81	68	VOLK	STAND	11496	91	4	M	0	0	1	1	1	0	72	25	30.07	2000	4	E5P909
100164	100227	C	12/04/69	V81	69	VOLK	STAND	26348	91	4	M	0	0	1	1	1	0	69	24	30.15	2000	4	E25571
100164	100228	H																					
100165	100229	C	12/04/69	V81	68	VOLK	STAND	14398	91	4	M	0	0	1	1	1	0	71	23	30.15	2000	4	J089813
100181	100247	C	12/06/69	V81	69	VOLK	STAND	17126	91	4	M	0	0	1	1	1	0	70	24	29.70	2000	4	J0R0147
100192	100265	C	12/10/69	V81	69	VOLK	STAND	19462	91	4	A	0	0	1	1	1	0	69	35	29.66	2000	4	G7T506
100182	100266	R	12/11/69	V81	69	VOLK	STAND	19462	91	4	A	0	0	1	1	1	0	70	24	30.03	2000	4	G7T506
100500	100988	C	11/04/70	V81	69	VOLK	STAND	20719	91	4	4	0	0	1	1	1	0	72	36	30.60	2000	4	ST4370
100500	100989	H																					
100504	101039	C	11/18/70	V81	69	VOLK	STAND	10774	91	4	4	0	0	1	1	1	0	74	33	30.37	2000	4	WY31448
100513	101058	C	12/01/70	V81	68	VOLK	STAND	61313	91	4	4	0	0	1	1	1	0	76	46	30.31	2000	4	YN4462
100139	100195	C	11/26/69	V82	68	VOLK	SQRK	15893	97	4	M	0	1	0	1	1	0	70	28	30.50	2500	4	J036272
100196	100264	C	12/10/69	V82	68	VOLK	SQRK	38945	97	4	M	0	1	0	1	1	0	70	36	29.66	2500	4	6246562
100200	100273	C	12/15/69	V82	69	VOLK	SQRK	14213	97	4	A	0	1	0	1	1	0	69	32	30.35	2500	4	WY49284
100205	100291	C	12/16/69	V82	68	VOLK	FTRK	18117	97	4	M	0	1	0	1	1	0	69	44	30.31	2500	4	K2C806
100205	100292	R	12/17/69	V82	68	VOLK	FTRK	18117	97	4	M	0	1	0	1	1	0	72	28	30.34	2500	4	K2C806
100228	100313	C	12/23/69	V82	68	VOLK	SQRK	13446	97	4	M	0	1	0	1	1	0	69	25	29.85	2500	4	C3P446
100229	100314	C	12/23/69	V82	69	VOLK	SQRK	5513	97	4	M	1	1	0	1	1	0	69	25	29.85	2500	4	X69007
100258	100348	C	1/08/70	V82	68	VOLK	SQRK	33052	97	4	M	0	1	0	1	1	0	68	8	30.59	2500	4	P17126
100269	100366	C	1/12/70	V82	68	VOLK	SQRK	34256	97	4	M	1	1	0	1	1	0	68	21	30.20	2500	4	J029260
100269	100367	H																					
100270	100368	C	1/12/70	V82	69	VOLK	SQRK	12525	97	4	A	0	1	0	1	1	0	68	21	30.21	2500	4	P6T438
100271	100369	C	1/12/70	V82	69	VOLK	FTRK	3864	97	4	A	0	1	0	1	1	0	71	22	30.19	2500	4	WY98924
100283	100386	C	1/19/70	V82	68	VOLK	SQRK	26536	97	4	M	0	1	0	1	1	0	68	48	30.33	2500	4	KT9047
100299	100407	C	1/23/70	V82	68	VOLK	SQRK	16389	97	4	M	0	1	0	1	1	0	71	31	30.10	2500	4	S9W830
100299	100408	H																					
100391	100410	C	1/24/70	V82	68	VOLK	SQRK	17321	97	4	M	1	1	0	1	1	0	76	31	29.72	2500	4	WY20884
100310	100420	C	1/27/70	V82	69	VOLK	SQRK	16469	97	4	A	0	1	0	1	1	0	72	30	29.94	2500	4	AN6378
100374	100503	C	2/09/70	V82	68	VOLK	SQRK	45298	97	4	M	0	1	0	1	1	0	68	21	30.38	2500	4	J027014

TABLE A-2

Kansas City

Phase II

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE II — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSD	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100106	200640	C	7/17/70	A01	68	RAMB	AMERI	21116	232	6	M	0	0	1	1	1	0	85	90	29.95	3000	8	53W527
100150	201533	C	3/23/71	A01	68	AMER	REBEL	7933	232	6	0	0	0	1	1	1	0	74	22	30.25	3500	8	780652
100150	201541	P	3/24/71	A01	68	AMER	REBEL	7945	232	6	0	0	0	1	1	1	0	74	18	30.22	3500	8	780652
100210	200634	C	7/17/70	A01	68	AMER	JAVEL	27756	232	6	M	1	0	1	1	1	0	86	89	29.10	3000	8	J024680
100238	200675	C	7/20/70	A01	69	AMER	REBEL	23582	232	6	A	0	0	1	1	1	0	86	98	30.06	3500	8	WY10433
100244	200946	C	10/15/70	A01	68	AMER	JAVEL	32663	232	6	3	0	0	1	1	1	0	76	41	30.87	3000	8	J032299
100250	200956	C	10/21/70	A01	69	AMER	JAVEL	16873	232	6	0	1	0	1	1	1	0	71	59	30.23	3000	8	J074435
100252	200967	C	10/29/70	A01	68	AMER	JAVEL	47764	232	6	3	1	0	1	1	1	0	70	36	30.19	3000	8	SX3300
100252	200968	H																					
100401	200635	C	7/17/70	A01	69	AMER	STAWA	17894	232	6	A	1	0	1	1	1	0	86	89	28.86	3000	8	KS1101
100403	200650	C	7/21/70	A01	68	AMER	REBEL	18914	232	6	A	0	0	1	1	1	0	80	59	30.36	3500	8	KS6333
100406	200838	C	7/17/70	A01	69	AMER	JAVEL	26621	232	6	M	0	0	1	1	1	0	86	90	29.88	3000	8	
100412	200647	C	7/20/70	A01	68	AMER	JAVEL	36287	232	6	A	1	0	1	1	1	0	77	78	30.29	3000	8	Z5N521
100417	200633	C	7/17/70	A01	69	AMER	REBEL	14463	232	6	A	0	0	1	1	1	0	86	89	29.10	3000	8	Y3R043
100435	201170	C	12/29/70	A01	69	AMER	REBEL	32343	232	6	0	0	0	1	1	1	0	73	23	30.64	3500	8	WY47597
100452	200636	C	7/17/70	C11	68	PLYM	VALIA	29274	225	6	A	0	0	1	1	1	0	86	90	29.86	3000	8	JA2119
100169	201131	C	12/17/70	C11	68	DODG	DART	50368	225	6	0	0	0	1	1	1	0	76	26	30.42	3000	8	SW3725
100202	200652	C	7/22/70	C11	68	DODG	DART	25823	225	6	A	1	0	1	1	1	0	80	75	30.29	3000	8	KS5489
100224	200837	C	7/17/70	C11	69	PLYM	BELVE	14259	225	6	M	1	0	1	1	1	0	86	90	29.86	3500	8	WY25349
100248	200852	C	9/10/70	C11	69	PLYM	VALIA	14282	225	6	0	0	0	1	1	1	0	77	37	30.38	3000	8	S4X275
100263	200644	C	7/19/70	C11	68	PLYM	BARRA	52769	225	6	A	0	0	1	1	1	0	85	110	29.98	3500	8	J073128
100274	201587	C	4/01/71	C11	69	DODG	DART	25569	225	6	3	0	0	1	1	1	0	73	35	29.99	3000	8	KC9299
100274	201590	H																					
100274	201589	R	4/02/71	C11	69	DODG	DART	25585	225	6	M	0	0	1	1	1	0	69	19	30.10	3000	8	KC9299
100294	200799	C	8/19/70	C11	69	DODG	DART	37182	225	6	A	1	0	1	1	1	0	84	94	29.90	3000	8	PA3350
100298	200643	C	7/18/70	C11	69	DODG	DART	15895	225	6	M	0	0	1	1	1	0	85	110	29.98	3000	8	J091064
100325	201429	C	3/01/71	C11	69	PLYM	VALIA	10315	225	6	0	0	0	1	1	1	0	76	23	29.95	3000	8	XP5472
100325	201442	H																					
100325	201441	R	3/02/71	C11	69	PLYM	VALIA	10325	225	6	0	0	0	1	1	1	0	78	31	30.25	3000	8	XP5472
100326	200649	C	7/21/70	C11	69	DODG	DART	18914	225	6	M	0	0	1	1	1	0	80	59	30.36	3000	8	EP1773
100358	200645	C	7/18/70	C11	68	DODG	DART	26691	225	6	A	0	0	1	1	1	0	86	110	29.97	3000	8	S87523
100012	200796	C	8/20/70	C12	68	PLYM	SATFL	42393	318	8	A	1	0	2	1	1	0	85	94	30.07	3500	8	J035965
100036	200651	C	7/22/70	C12	68	PLYM	STAWA	27467	318	8	A	1	0	2	1	1	0	80	75	30.29	4000	8	AN1249
100051	200691	C	7/31/70	C12	68	PLYM	BELVE	55106	318	8	M	1	0	2	1	1	0	86	101	29.88	3500	8	AM1697
100059	200786	C	8/19/70	C12	69	PLYM	FURY	18235	318	8	A	1	0	2	1	1	0	84	95	29.89	4000	8	MW7339
100120	200901	C	10/07/70	C12	69	PLYM	FURY	28531	318	8	0	1	0	2	1	1	0	73	80	29.90	4000	8	EN6323
100129	200642	C	7/18/70	C12	68	PLYM	FURY	22145	318	8	A	1	0	2	1	1	0	85	110	30.00	4000	8	AN6911
100132	200646	C	7/20/70	C12	69	PLYM	SATFL	29627	318	8	A	1	0	2	1	1	0	77	78	30.25	3500	8	X6T318
100162	200850	C	9/10/70	C12	69	DODG	CHARA	44376	318	8	0	1	0	2	1	1	0	69	90	30.45	3500	8	S56907
100170	200777	C	8/18/70	C12	68	PLYM	STAWA	41831	318	8	A	1	0	2	1	1	0	83	91	29.88	4000	8	J073157
100186	200863	C	9/16/70	C12	69	PLYM	FURY	10173	318	8	0	1	0	2	1	1	0	68	72	30.40	4000	8	S9Z479
100188	200858	C	9/14/70	C12	68	PLYM	SATFL	61272	318	8	0	1	0	2	1	1	0	74	61	30.18	3500	8	J038151
100188	200859	H																					
100188	200860	R	9/15/70	C12	68	PLYM	SATEL	61280	318	8	0	1	0	2	1	1	0	69	77	30.28	3500	8	J038151
100520	201475	C	3/11/71	C12	69	PLYM	FURY	19667	318	8	0	0	0	2	1	1	0	77	18	29.65	4500	8	DG2181
100033	200795	C	8/19/70	C13	69	CHRY	NEWPO	14446	383	8	A	1	0	2	1	1	0	84	95	29.88	4500	8	MT3508
100047	200790	C	8/19/70	C13	68	CHRY	NEWPO	13839	383	8	A	1	0	2	1	1	0	85	94	29.91	4500	8	BM4275
100056	200928	C	10/13/70	C13	69	CHRY	NEWPO	16135	383	8	0	1	0	2	1	1	0	69	49	30.24	4500	8	AM5159
100085	200818	C	8/24/70	C13	69	DODG	CHARG	16526	383	8	A	1	0	2	1	1	0	79	80	30.16	4000	8	J037939
100090	200653	C	7/22/70	C13	68	CHRY	NEWPO	33808	383	8	A	1	0	2	1	1	0	81	74	30.29	4500	8	31X942
100099	200641	C	7/18/70	C13	68	CHRY	NEWPO	34082	383	8	A	1	0	2	1	1	0	84	110	30.02	4500	8	X65216
100117	200853	C	9/11/70	C13	69	PLYM	STAWA	46936	383	8	0	1	0	4	1	1	0	80	78	30.01	4000	8	J018C77
100133	200787	C	8/19/70	C13	68	CHRY	NEWPO	33920	383	8	A	1	0	2	1	1	0	84	95	29.88	4500	8	EM7604
100167	200795	C	8/20/70	C13	69	DODG	POLAR	21093	383	8	A	1	0	2	1	1	0	85	94	30.05	4000	8	J08088A
100174	200798	C	8/20/70	C13	68	DODG	STAWA	31545	383	8	A	1	0	2	1	1	0	85	94	30.06	5000	8	RP5167
100222	201166	C	12/24/70	C13	68	CHRY	NEWPO	74960	383	8	0	1	0	2	1	1	0	75	23	30.67	4500	8	PR5860
100289	200907	C	10/07/70	C13	69	PLYM	STAWA	46961	383	8	0	1	0	2	1	1	0	75	92	29.85	4500	8	WY77247
100289	200908	R	10/08/70	C13	69	PLYM	STAWA	46967	383	8	0	1	0	2	1	1	0	65	53	29.69	4500	8	WY77247
100101	200899	C	10/07/70	C14	68	CHRY	IMPER	31986	440	8	0	1	0	4	1	1	0	73	79	29.94	5500	8	CM7328
100197	200902	C	10/07/70	C14	69	CHRY	NEWYO	18783	440	8	0	1	0	4	1	1	0	74	78	29.86	4500	8	PS7977
100197	200903	H																					
100226	200658	C	7/23/70	C14	69	CHRY	NEWYO	20961	440	8	A	1	0	4	1	1	0	78	66	30.18	4500	8	AM8145
100260	200806	C	8/21/70	C14	68	PLYM	VIP	24135	440	8	A	1	0	4	1	1	0	84	91	30.06	4000	8	WY41004
100260	200817	R	8/24/70	C14	68	PLYM	VIP	24141	440	8	A	1	0	4	1	1	0	78	85	30.19	4000	8	WY41004
100266	200654	C	7/23/70	C14	69	DODG	CHARG	16481	440	8	A	1	0	4	1	1	0	78	65	30.19	4000	8	WY11909
100277	200794	C	8/20/70	C14	69	CHRY	NEWYO	38513	440	8	A	1	0	4	1	1	0	84	93	30.03	4500	8	PS3253
100295	200659	C	7/23/70	C14	69	DODG	CHARG	94014	440	8	A	0	0	4	1	1	0	80	69	30.18	4000	8	XZA139
100306	200800	C	8/20/70	C14	69	DODG	CHARG	24161	440	8	A	1	0	4	1	1	0	85	94	30.06	4000	8	GT1832
100321	200805	C	8/21/70	C14	69	CHRY	STAWA	18922	440	8	A	1	0	4	1	1	0	83	91	30.05	5000	8	S9W449
100342	200807	C	8/21/70	C14	69	CHRY	300	27509	440	8	A	1	0	4	1	1	0	85	91	30.04	4500	8	FM5179
100342	200808	H																					
100441	200813	C	8/24/70	C14	68	DODG	CHARG	41002	440	8	A	1	0	4	1	1	0	74	87	30.14	4000	8	WY56166
100441	200814	H																					
100142	200856	C	9/14/70	F31	69	FORD	MUSTA	29128	200	6	0	1	0	1	1	1	0	71	60	30.20	3000	8	AP7788
100187	200654	C	7/22/70	F31	68	FORD	FALCO	14934	200	6	A	1	0	1	1	1	0	81	74	30.29	3000	8	Z6M740
100213	200857	C	9/14/70	F31	68	FORD	FALCO	40314	200	6	0	1	0	1	1	1	0	72	61	30.19	3500	8	Z4A989
100239	200647	C	7/27/70	F31	69	FORD	FALCO	15978	200	6	A	0	0	1	1	1	0	83	91	30.08	3000	8	D7W391
100255	200661	C	7/24/70	F31	68	FORD	MUSTA	19150	200	6	A	1	0	1	1	1	0	71	79	30.26	3000	8	FR5192
100292	200809	C	8/21/70	F31	69	FORD	MUSTA	44149	200	6	A	0	0	1	1	1	0	86	92	30.03	3000	8	JA1206
100322	200854	C	9/14/70	F31	68	FORD	MUSTA	24873	200	6	0	0	0	1	1	1	0	71	60	30.21	3000	8	SA2966
100322	200855	H																					

KANSAS CITY PHASE II — PROCESSING DATE- 03/27/72

COLD START CAR NO	VEHICLE RUN NO	S	INFORMATION --DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100328	200803	C	8/21/70	F31	68	FORD	FALCO	45419	200	6	A	0	0	1	1	1	0	82	91	30.05	3500	8	WY48016
100340	200909	C	10/08/70	F31	68	FORD	FAIRL	24171	200	6	0	1	0	1	1	1	0	65	53	29.70	3500	8	X3R729
100346	200983	C	11/04/70	F31	69	FORD	FALCO	16011	200	6	0	0	0	1	1	1	0	72	36	30.60	3000	8	PW9520
100381	201149	C	12/21/70	F31	69	FORD	FALCO	70953	200	6	0	1	0	1	1	1	0	74	33	30.36	3000	8	Z1N537
100381	201150	R	12/22/70	F31	69	FORD	FALCO	50653	200	6	0	1	0	1	1	1	0	74	22	30.30	3000	8	Z1N537
100433	200655	C	7/22/70	F31	68	FORD	STAWA	29500	200	6	A	0	0	1	1	1	0	81	74	30.25	3500	8	SIX024
100501	201514	C	3/19/71	F31	68	FORD	FAIRL	33291	200	6	0	0	0	1	1	1	0	73	21	29.85	3500	9	KG4764
100501	201517	H																					
100339	200864	C	9/16/70	F32	70	FORD	MAVER	24159	201	6	0	0	0	1	1	1	0	71	88	30.35	3000	8	WY41707
100382	200865	C	9/16/70	F32	70	FORD	MAVER	16859	201	6	0	0	0	1	1	1	0	71	88	30.31	3000	8	J065631
100387	200697	C	8/03/70	F32	70	FORD	MAVER	19603	201	6	A	0	0	1	1	1	0	85	98	30.04	3000	8	WY22772
100389	200875	C	9/30/70	F32	70	FORD	MAVER	16219	201	6	0	1	0	1	1	1	0	78	52	30.19	3000	8	CF1692
100388	200880	R	10/01/70	F32	70	FORD	MAVER	16221	201	6	0	1	0	1	1	1	0	75	59	29.93	3000	8	CF1592
100398	200804	C	8/21/70	F32	70	FORD	MAVER	26537	201	6	0	1	0	1	1	1	0	83	91	30.06	3000	9	WY22479
100405	201079	C	12/04/70	F32	70	FORD	MAVER	19306	201	6	3	0	0	1	1	1	0	70	24	30.82	3000	8	GW1592
100414	200701	C	8/04/70	F32	70	FORD	MAVER	11395	201	6	A	1	0	1	1	1	0	84	96	30.04	3000	8	MR4781
100429	200698	C	8/03/70	F32	70	FORD	MAVER	21014	201	6	A	0	0	1	1	1	0	85	97	30.03	3000	8	P4T594
100431	200962	C	10/27/70	F32	70	FORD	MAVER	25691	201	6	3	1	0	1	1	1	0	75	92	30.25	3000	8	J011406
100431	200963	H																					
100432	200906	C	10/07/70	F32	70	FORD	MAVER	10365	201	6	0	0	0	1	1	1	0	75	92	29.84	3000	8	KS7638
100444	200704	C	8/04/70	F32	70	FORD	MAVER	15098	201	6	M	0	0	1	1	1	0	86	97	30.09	3000	8	X12365
100446	200703	C	8/04/70	F32	70	FORD	MAVER	12146	201	6	A	1	0	1	1	1	0	85	96	30.10	3000	8	Z8N202
100447	200869	C	9/17/70	F32	70	FORD	MAVER	15578	201	6	0	1	0	1	1	1	0	72	92	30.29	3000	8	K2X089
100508	201493	C	3/13/71	F32	70	FORD	MAVER	12123	200	6	3	1	0	1	1	1	0	75	26	29.44	2500	6	S47828
100017	200681	C	7/30/70	F33	69	FORD	CUSTO	36458	302	8	A	1	0	2	1	1	0	86	100	29.90	4000	8	WY33149
100017	200682	H																					
100337	200690	C	7/31/70	F33	69	FORD	TORIN	20849	302	8	A	1	0	2	1	1	0	86	101	29.88	3500	8	RP3382
100358	200870	C	9/17/70	F33	69	MERC	CYCLO	41067	302	8	0	1	0	2	1	1	0	72	92	30.28	3500	8	AL8834
100365	200708	C	8/05/70	F33	68	MERC	MONTE	20914	302	8	A	1	0	2	1	1	0	86	102	30.03	3500	8	J016037
100371	200816	C	8/24/70	F33	68	FORD	GALAX	48240	302	8	A	0	0	2	1	1	0	77	85	30.18	4000	8	JDL853
100389	200821	C	8/24/70	F33	69	FORD	FAIRL	10960	302	8	A	1	0	2	1	1	0	85	67	30.11	3500	8	J033309
100116	200684	C	7/30/70	F33	68	FORD	STAWA	34053	302	8	A	1	0	2	1	1	0	86	99	29.90	4000	8	J015624
100144	200810	C	8/21/70	F33	68	FORD	GALAX	45649	302	8	A	1	0	2	1	1	0	86	92	30.04	4000	8	X8P829
100144	200811	H																					
100147	200802	C	8/21/70	F33	69	FORD	GALAX	31352	302	8	A	*1	0	2	1	1	0	82	91	30.05	4000	8	EP2656
100155	200920	C	8/24/70	F33	69	FORD	GALAX	36932	302	8	A	1	0	2	1	1	0	84	67	30.14	4000	8	J077324
100159	200822	R	8/25/70	F33	69	FORD	GALAX	36839	302	8	A	1	0	2	1	1	0	76	72	30.14	4000	8	J077325
100204	200815	C	8/24/70	F33	68	FORD	CUSTO	40561	302	8	A	0	0	2	1	1	0	76	85	30.18	4000	8	J010955
100223	200957	C	9/17/70	F33	69	FORD	TORIN	32576	302	8	0	1	0	2	1	1	0	72	92	30.30	4000	8	AM7690
100223	200868	H																					
100298	200732	C	8/10/70	F33	69	FORD	MUSTA	21150	302	8	A	1	0	2	1	1	0	81	95	30.01	3500	8	Z8P164
100319	201528	C	3/22/71	F33	69	FORD	CUSTO	14534	302	8	0	0	0	2	1	1	0	70	32	30.20	4000	8	A4N461
100322	201527	C	3/22/71	F33	69	FORD	MUSTA	26680	302	8	0	1	0	2	1	1	0	70	32	30.23	3500	8	YN9503
100152	200731	C	8/10/70	F34	69	FORD	MUSTA	25710	351	8	A	1	0	2	1	1	0	80	95	30.01	3500	8	J095195
100156	200699	C	8/04/70	F34	69	FORD	LTD	44992	351	8	A	1	0	2	1	1	0	84	96	30.03	4500	8	DG17911
100156	200700	H																					
100251	200845	C	8/31/70	F34	69	FORD	MUSTA	23824	351	8	A	1	0	2	1	1	0	83	87	30.32	3500	8	J05355
100339	200964	C	10/15/70	F34	69	FORD	FAIRL	22351	351	8	0	1	0	2	1	1	0	76	41	30.87	3500	8	Y5R107
100361	200837	C	8/26/70	F34	69	MERC	COUGA	12026	351	8	A	1	0	2	1	1	0	85	75	30.17	4000	8	AM4142
100393	200755	C	8/13/70	F34	69	FORD	LTD	15160	351	8	A	1	0	2	1	1	0	80	92	30.08	4500	8	MS1850
100427	200743	C	8/11/70	F34	69	FORD	MUSTA	24949	351	8	A	0	0	2	1	1	0	85	91	30.14	3500	8	AN5734
100438	200911	C	10/08/70	F34	69	FORD	MUSTA	17127	351	8	0	1	0	2	1	1	0	69	87	29.70	3500	8	MS2748
100439	200714	C	8/06/70	F34	69	FORD	MUSTA	23473	351	8	A	1	0	2	1	1	0	85	103	30.04	3500	8	K9C172
100442	200838	C	8/26/70	F34	69	FORD	MUSTA	22257	351	8	M	0	0	2	1	1	0	85	75	30.15	3500	8	KS9162
100442	200839	H																					
100453	200866	C	9/17/70	F34	69	MERC	COUGA	7762	351	8	0	1	0	2	1	1	0	72	92	30.31	4000	8	Y7P332
100524	201432	C	3/01/71	F34	69	FORD	MUSTA	31440	351	8	4	0	0	2	1	1	0	76	23	29.95	3500	8	A6N117
100524	201435	H																					
100524	201434	R	3/02/71	F34	69	FORD	MUSTA	31450	351	8	4	0	0	2	1	1	0	78	31	30.20	3500	8	A6N117
100938	200947	C	10/15/70	F35	68	FORD	GALAX	43504	390	8	0	0	0	2	1	1	0	76	41	30.83	4000	8	EQ5469
100043	200784	C	8/19/70	F35	68	FORD	LTD	31429	390	8	A	1	0	2	1	1	0	83	95	29.87	4000	8	4204
100049	200933	C	10/13/70	F35	68	FORD	STAWA	17360	390	8	0	1	0	2	1	1	0	70	44	30.15	4000	8	KC5056
100046	200873	C	9/18/70	F35	69	FORD	LTD	38949	390	8	0	1	0	2	1	1	0	72	92	30.31	4500	8	EN3477
100049	200874	C	9/18/70	F35	69	FORD	GALAX	27037	390	8	0	1	0	2	1	1	0	72	92	30.32	4500	8	EP3808
100081	200715	C	8/06/70	F35	69	FORD	GALAX	28219	390	8	A	1	0	2	1	1	0	86	102	30.03	4500	8	J099422
100102	200823	C	8/25/70	F35	68	FORD	XL	34619	390	8	A	1	0	2	1	1	0	76	71	30.16	4000	8	Z4A857
100119	200921	C	10/12/70	F35	69	FORD	XL	56134	390	8	0	0	0	2	1	1	0	69	54	30.06	4000	8	Z7M051
100127	200706	C	8/05/70	F35	69	FORD	STAWA	25113	390	8	A	1	0	2	1	1	0	85	103	30.01	4500	8	P3T933
100153	200709	C	8/05/70	F35	69	FORD	STAWA	31512	390	8	A	1	0	2	1	1	0	86	103	30.00	4500	8	P37054
100166	200812	C	8/24/70	F35	69	MERC	STAWA	27526	390	8	A	1	0	2	1	1	0	73	87	30.12	4500	8	J036017
100201	200758	C	8/13/70	F35	69	FORD	MERCU	8882	390	8	A	1	0	2	1	1	0	81	92	30.09	4500	8	J0836
100395	200719	C	8/07/70	F35	69	FORD	GALAX	28346	390	8	A	1	0	2	1	1	0	85	117	30.01	4000	8	Z1N049
100398	200750	C	8/12/70	F35	69	FORD	STAWA	19579	390	8	A	1	0	2	1	1	0	82	90	30.14	4500	8	GW4138
100507	201573	C	3/30/71	F35	69	FORD	LTD	41374	390	8	0	1	0	2	1	1	0	76	31	29.85	4500	8	PS4976
100507	201574	H																					
100510	201536	C	3/23/71	F35	69	FORD	LTD	28918	390	8	0	1	0	2	1	1	0	74	22	30.21	4500	8	A8M618
100510	201544	H																					
100510	201545	R	3/24/71	F35	69	FORD	LTD	29526	390	8	0	1	0	2	1	1	0	74	18	30.23	4500	8	A8M618
100220	200720	C	8/07/70	F36	68	FORD	THUND	24033	429	8	A	1	0	4	1	1	0	85	118	30.00	5000	8	X1J212
100352	200941	C	10/14/70	F36	69	FORD	THUND	36970	429	8	0	1	0	4	1	1	0	69	93	30.35	5000	8	4N1420

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE II — PROCESSING DATE= 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100352	200942	R	10/15/70	F36	69	FORD	THUND	36876	429	8	0	1	0	4	1	1	0	76	41	30.84	5000	8	AN1420
100384	200713	C	8/26/70	F36	69	FORD	THUND	11856	429	8	A	1	0	4	1	1	0	85	103	30.02	5000	8	847496
100386	200826	C	8/25/70	F36	69	FORD	THUND	17392	429	8	A	1	0	4	1	1	0	78	65	30.16	5000	8	J010111
100415	200740	C	8/11/70	F36	69	FORD	THUND	36259	429	8	A	1	0	4	1	1	0	84	90	30.13	5000	8	J071764
100416	201033	C	11/17/70	F36	69	FORD	THUND	29162	429	8	0	1	0	4	1	1	0	76	30	30.43	5000	8	WY27397
100418	200677	C	7/29/70	F36	69	FORD	THUND	38623	429	8	A	1	0	4	1	1	0	85	99	30.05	5000	8	P57831
100424	200971	C	10/30/70	F36	68	FORD	THUND	41166	429	8	0	1	0	4	1	1	0	74	37	30.31	5000	8	MW8077
100425	200835	C	8/26/70	F36	69	FORD	THUND	18153	429	8	A	1	0	4	1	1	0	79	76	30.14	5000	8	J014595
100426	200799	C	8/20/70	F36	68	FORD	THUND	35180	429	8	A	1	0	4	1	1	0	85	94	30.05	5000	8	769769
100428	200836	C	8/26/70	F36	69	MERC	BROUG	12283	429	8	A	1	0	4	1	1	0	79	76	30.13	4500	8	J02846
100450	200827	C	8/25/70	F36	69	FORD	STAWA	19874	429	8	A	1	0	4	1	1	0	79	65	30.16	4500	8	RM3802
100257	200657	C	7/23/70	G51	68	CHEV	CHEVE	38631	230	6	A	0	0	1	1	1	0	78	65	30.19	3500	8	X55554
100278	200672	C	7/28/70	G51	68	CHEV	CHEVE	21299	230	6	A	1	0	1	1	1	0	85	92	30.10	3500	8	J097954
100337	200992	C	11/05/70	G51	68	CHEV	NOVA	29930	230	6	0	0	0	1	1	1	0	74	29	30.62	3500	8	EN9757
100356	201157	C	12/22/70	G51	69	CHEV	NOVA	27735	230	6	0	0	0	1	1	1	0	74	22	30.15	3500	8	J095542
100370	200927	C	10/13/70	G51	68	CHEV	CHEVE	32252	230	6	0	1	0	1	1	1	0	69	54	30.17	3500	8	CP1877
100407	200925	C	10/12/70	G51	69	CHEV	CHEVE	26463	230	6	0	0	0	1	1	1	0	69	62	30.11	3500	8	EN8815
100407	200926	R	10/13/70	G51	69	CHEV	CHEVE	26469	230	6	0	0	0	1	1	1	0	69	58	30.20	3500	8	EN8815
100422	200662	C	7/24/70	G51	68	CHEV	CHEVE	29119	230	6	A	0	0	1	1	1	0	71	79	30.25	3500	8	S67615
100434	200663	C	7/24/70	G51	68	CHEV	NOVA	28392	230	6	A	1	0	1	1	1	0	72	80	30.24	3500	8	P44443
100436	200932	C	10/13/70	G51	68	CHEV	CAMAR	31399	230	6	0	0	0	1	1	1	0	70	44	30.16	3000	8	AM5094
100443	200984	C	11/04/70	G51	69	CHEV	NOVA	28306	230	6	0	0	0	1	1	1	0	72	36	30.60	3500	8	Z34313
100452	200969	C	10/29/70	G51	69	CHEV	NOVA	29478	230	6	0	0	0	1	1	1	0	70	36	30.12	3500	8	KC7205
100319	200683	C	7/30/70	G52	68	CHEV	NOVA	14085	250	6	0	0	0	1	1	1	0	86	99	29.90	3500	8	PM8929
100344	200670	C	7/28/70	G52	69	CHEV	BISCA	17289	250	6	A	1	0	1	1	1	0	85	92	30.08	4000	8	X35719
100362	200666	C	7/27/70	G52	68	CHEV	BISCA	38484	250	6	A	0	0	1	1	1	0	83	90	30.11	4000	8	Y1Y404
100372	200678	C	7/29/70	G52	68	CHEV	MALIB	25912	250	6	A	0	0	1	1	1	0	85	99	30.06	3500	8	Z79787
100377	200668	C	7/27/70	G52	68	CHEV	MALIB	26173	250	6	A	0	0	1	1	1	0	83	91	30.05	3500	8	EN9253
100385	200903	C	10/07/70	G52	69	CHEV	IMPAL	13097	250	6	0	1	0	1	1	1	0	73	79	29.93	4000	8	KR7236
100390	200669	C	7/27/70	G52	69	CHEV	NOVA	14599	250	6	A	0	0	1	1	1	0	84	92	30.03	3500	8	KC9753
100410	200917	C	10/09/70	G52	68	CHEV	CHEVE	21634	250	6	0	0	0	1	1	1	0	69	87	29.70	3500	8	SX9823
100413	201148	C	12/21/70	G52	68	CHEV	BELAI	53540	250	6	0	0	0	1	1	1	0	74	33	30.44	4000	9	GS9227
100419	200676	C	7/29/70	G52	69	CHEV	NOVA	31053	250	6	A	0	0	1	1	1	0	85	98	30.07	3500	8	W1A163
100420	200660	C	7/24/70	G52	69	CHEV	BELAI	13320	250	6	0	0	0	1	1	1	0	84	117	30.03	4000	8	W1A163
100421	201596	C	4/02/71	G52	68	CHEV	NOVA	38710	250	6	0	1	0	1	1	1	0	70	79	30.25	4000	8	AN3405
100421	201597	R	4/03/71	G52	68	CHEV	NOVA	38724	250	6	0	1	0	1	1	1	0	74	19	30.05	3500	8	J023318
100455	200671	C	7/28/70	G52	68	CHEV	NOVA	26044	250	6	A	0	0	1	1	1	0	71	20	30.07	3500	8	JC23318
100009	200924	C	10/12/70	G53	68	CHEV	IMPAL	31526	307	8	0	1	0	2	1	1	0	85	92	30.09	3500	8	X55248
100011	200734	C	8/10/70	G53	68	CHEV	MALIB	32288	307	8	A	1	0	2	1	1	0	69	58	30.09	4000	8	MS3830
100013	200904	C	10/07/70	G53	69	CHEV	CAMAR	23360	307	8	0	1	0	2	1	1	0	81	95	30.00	3500	8	X69441
100014	200910	C	10/08/70	G53	68	CHEV	IMPAL	22799	307	8	0	0	0	2	1	1	0	74	78	29.84	3500	8	KR8719
100028	200727	C	8/07/70	G53	68	CHEV	STAWA	37231	307	8	A	0	0	2	1	1	0	69	46	29.70	4000	8	WY59504
100129	200912	C	10/08/70	G53	69	CHEV	NOVA	23391	307	8	0	1	0	2	1	1	0	86	118	29.90	4500	8	J015470
100145	200718	C	8/07/70	G53	68	CHEV	IMPAL	30700	307	8	A	1	0	2	1	1	0	69	87	29.70	3500	8	WY45986
100179	201630	C	4/13/71	G53	68	CHEV	IMPAL	24329	307	8	0	1	0	2	1	1	0	84	117	30.03	4000	8	R1A566
100179	201631	R	4/14/71	G53	68	CHEV	IMPAL	24333	307	8	0	1	0	2	1	1	0	72	40	30.25	4000	8	XN3644
100191	200725	C	8/07/70	G53	68	CHEV	BISCA	42057	307	8	A	1	0	2	1	1	0	73	35	30.25	4000	8	XN3644
100191	200726	H																					
100237	200735	C	8/11/70	G53	68	CHEV	IMPAL	20493	307	8	A	1	0	2	1	1	0	83	90	30.14	4000	8	X15209
100243	201000	C	11/06/70	G53	69	CHEV	CHEVE	35615	307	8	0	0	0	2	1	1	0	74	34	30.10	3500	8	J027731
100311	200733	C	8/10/70	G53	69	CHEV	MALIB	23142	307	8	A	0	0	2	1	1	0	81	95	30.00	3500	8	AL8817
100357	200721	C	8/07/70	G53	68	CHEV	BISCA	47053	307	8	A	0	0	2	1	1	0	85	118	30.00	4000	8	X1R848
100357	200722	H																					
100437	200717	C	8/07/70	G53	68	CHEV	BELAI	13041	307	8	0	1	0	2	1	1	0	75	117	30.04	4000	9	AM3081
100040	200979	C	11/03/70	G54	68	CHEV	IMPAL	35974	327	8	0	0	0	4	1	1	0	76	64	30.18	4000	8	MA9303
100040	200980	H																					
100041	200738	C	8/11/70	G54	68	CHEV	IMPAL	33389	327	8	A	1	0	4	1	1	0	83	90	30.11	4000	8	FN7593
100054	200741	C	8/11/70	G54	69	CHEV	STAWA	31980	327	8	A	1	0	4	1	1	0	84	90	30.13	4500	8	W1A846
100054	200742	H																					
100063	200744	C	8/11/70	G54	68	CHEV	IMPAL	31325	327	8	A	1	0	4	1	1	0	85	90	30.13	4000	8	EA6283
100068	200739	C	8/11/70	G54	68	CHEV	STAWA	23730	327	8	A	1	0	4	1	1	0	84	90	30.12	4500	8	RN1156
100087	200729	C	8/10/70	G54	68	CHEV	IMPAL	25383	327	8	A	1	0	4	1	1	0	80	95	29.99	4000	8	CA5268
100104	200752	C	8/12/70	G54	68	CHEV	MALIB	38213	327	8	A	1	0	4	1	1	0	83	90	30.12	3500	8	J016627
100104	200753	H																					
100141	200913	C	10/08/70	G54	68	CHEV	IMPAL	32920	327	8	0	1	0	4	1	1	0	69	87	29.70	4000	8	J039129
100141	200914	H																					
100148	200736	C	8/11/70	G54	68	CHEV	STAWA	20762	327	8	A	1	0	4	1	1	0	83	90	30.12	4500	8	J021711
100148	200737	H																					
100172	200916	C	10/09/70	G54	68	CHEV	BELAI	28905	327	8	0	1	0	4	1	1	0	69	87	29.70	4500	8	JC25961
100192	200930	C	10/13/70	G54	68	CHEV	IMPAL	28258	327	8	0	1	0	4	1	1	0	69	49	30.24	4000	8	GS8600
100192	200931	H																					
100198	200828	C	8/25/70	G54	68	CHEV	STAWA	58719	327	8	A	1	0	4	1	1	0	81	46	30.16	4500	8	RM9860
100199	200871	C	9/17/70	G54	68	CHEV	IMPAL	17561	327	8	0	1	0	4	1	1	0	72	92	30.24	4000	8	Z38629
100199	200872	R	9/18/70	G54	68	CHEV	IMPAL	17569	327	8	0	1	0	4	1	1	0	72	92	30.24	4000	8	Z38629
100211	200937	C	10/14/70	G54	68	CHEV	CAPRI	34626	327	8	0	1	0	4	1	1	0	69	33	30.57	4000	8	RR7184
100211	200938	H																					
100509	201540	C	3/24/71	G54	68	CHEV	IMPAL	28084	327	8	0	1	0	2	1	1	0	74	18	30.23	4000	8	YN1513
100517	201304	C	2/05/71	G54	69	CHEV	IMPAL	41194	327	8	0	1	0	4	1	1	0	72	15	29.75	4000	8	RT4094
100008	200761	C	8/14/70	G55	69	CHEV	STAWA	35705	350	8	A	1	0	4	1	1	0	82	90	30.04	4000	8	55X915
100053	200956	C	10/21/70	G55	69	CHEV	STAWA	17440	350	8	0	1	0	4	1	1	0	74	50	30.28	4500	8	J040867

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE II — PROCESSING DATE= 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	MP	LIC NO
100062	200745	C	8/12/70	G55	69	CHEV	KIAGS	12889	350	8	A	1	0	4	1	1	C	82	90	30.15	4500	8	P3T500
100062	200746	H																					
100131	200747	C	8/12/70	G55	69	CHEV	STAWA	23360	350	8	A	1	0	4	1	1	C	82	90	30.14	4000	8	AM5912
100215	200771	C	8/17/70	G55	69	CHEV	IMPAL	34992	350	8	A	1	0	4	1	1	C	69	33	30.55	4000	8	JO73334
100216	200748	C	8/12/70	G55	69	CHEV	IMPAL	12280	350	8	A	1	0	4	1	1	C	84	93	30.13	4000	8	CAJ719
100235	200764	C	8/14/70	G55	69	CHEV	STAWA	33529	350	8	A	1	0	4	1	1	C	82	90	30.13	4500	8	Y5A313
100240	200756	C	8/13/70	G55	69	CHEV	IMPAL	12937	350	8	A	1	0	4	1	1	C	82	90	30.06	4000	8	Y5P043
100282	201609	C	4/05/71	G55	69	CHEV	IMPAL	45902	350	8	A	1	0	4	1	1	C	80	92	30.09	4000	8	CN9644
100282	201610	R	4/06/71	G55	69	CHEV	IMPAL	45907	350	8	A	1	0	4	1	1	C	71	19	30.46	4000	8	A8L663
																		72	21	30.42	4000	8	A8L663
100318	200770	C	8/17/70	G55	69	CHEV	CAPRI	13015	350	8	A	1	0	4	1	1	0	83	93	30.13	4000	8	BP2116
100296	200749	C	8/12/70	G56	68	CHEV	CHEVF	38380	396	8	A	1	0	4	1	1	0	82	90	30.14	4000	8	FR2206
100394	200985	C	11/04/70	G56	69	CHEV	CHEVF	21286	396	8	0	1	0	4	1	1	0	72	36	30.60	4000	8	ST1657
100346	200751	C	8/12/70	G56	69	CHEV	CHEVE	16326	396	8	A	1	0	4	1	1	0	83	90	30.13	4000	8	J080899
100350	200763	C	8/14/70	G56	69	CHEV	STAWA	14796	396	8	A	1	0	4	1	1	0	82	90	30.05	4500	8	AY13287
100365	200776	C	8/18/70	G56	69	CHEV	CAPRI	34104	396	8	A	1	0	4	1	1	0	82	91	29.89	4500	8	CW2249
100389	200788	C	8/19/70	G56	68	CHEV	IMPAL	46679	396	8	A	0	0	4	1	1	0	84	95	29.90	4500	8	P5Y396
100389	200792	R	8/20/70	G56	68	CHEV	IMPAL	46687	396	8	A	1	0	4	1	1	0	84	93	30.03	4500	8	P5Y396
100391	200832	C	8/26/70	G56	69	CHEV	CHEVE	23979	396	8	A	1	0	4	1	1	0	78	76	30.13	4000	8	M53497
100400	200981	C	11/02/70	G56	68	CHEV	STAWA	28431	396	8	0	1	0	4	1	1	0	76	64	30.19	4500	8	J085177
100004	201664	C	4/22/71	G61	69	PONT	FIREB	43523	350	8	0	0	0	2	1	1	0	70	37	29.67	3500	8	ST3664
100005	200960	C	10/25/70	G61	69	PONT	LEMAN	30352	350	8	0	1	0	2	1	1	0	71	59	30.00	4000	8	MK3401
100125	200955	C	10/21/70	G61	69	PONT	LEMAN	19321	350	8	0	1	0	2	1	1	0	71	59	30.22	4000	8	J040848
100173	200892	C	11/04/70	G61	69	PONT	LEMAN	31407	350	8	0	1	0	2	1	1	0	72	36	30.61	4000	8	KC6012
100218	200692	C	7/31/70	G61	68	PONT	FIREB	26140	350	8	A	1	0	2	1	1	0	86	100	29.88	3500	8	AY75998
100230	200716	C	8/06/70	G61	68	PONT	TEMPE	17165	350	8	A	1	0	2	1	1	C	86	102	30.02	4000	8	AY65215
100240	200905	C	10/07/70	G61	68	PONT	TEMPE	25580	350	8	0	1	0	2	1	1	0	75	77	29.83	4000	8	J032972
100267	200765	C	8/14/70	G61	69	PONT	TEMPE	23050	350	8	A	1	0	2	1	1	0	83	90	30.05	4000	8	J0102S2
100272	200974	C	11/02/70	G61	68	PONT	LEMAN	31849	350	8	0	1	0	2	1	1	0	78	19	30.39	4000	8	J041452
100273	200702	C	8/04/70	G61	68	PONT	TEMPE	37119	350	8	A	0	0	2	1	1	0	85	96	30.09	4000	8	X4R446
100279	200959	C	10/23/70	G61	69	PONT	LEMAN	21299	350	8	0	1	0	2	1	1	0	72	71	29.96	4000	8	J098936
100457	200696	C	8/03/70	G61	68	PONT	FIREB	14372	350	8	A	1	0	2	1	1	0	85	98	30.04	3500	8	KC7011
100502	201243	C	1/20/71	G61	68	PONT	LEMAN	34985	350	8	0	1	0	2	1	1	0	76	24	29.73	3500	8	J010313
100506	201479	C	3/12/71	G61	69	PONT	LEMAN	26088	350	8	0	1	0	2	1	1	0	75	22	29.68	4000	8	SW5918
100506	201480	R	3/13/71	G61	69	PONT	LEMAN	26094	350	8	0	1	0	2	1	1	0	70	26	29.67	4000	8	SW5918
100015	200797	C	8/13/70	G62	69	PONT	CATAL	93025	400	8	A	1	0	2	1	1	0	81	92	30.07	4500	8	FS8170
100023	200939	C	10/14/70	G62	68	PONT	GTO	35938	400	9	0	1	0	2	1	1	0	69	33	30.55	4000	8	J0R4399
100044	200844	C	8/27/70	G62	69	PONT	CATAL	11916	400	8	A	1	0	2	1	1	0	84	80	30.14	4500	8	PR4243
100193	200797	C	8/20/70	G62	69	PONT	CATAL	20546	400	8	A	1	0	2	1	1	0	85	96	30.06	4500	8	YZR401
100194	200754	C	8/13/70	G62	69	PONT	CATAL	23162	400	8	A	1	0	2	1	1	0	80	92	30.09	4500	8	J035203
100214	200760	C	8/13/70	G62	69	PONT	EXECU	12544	400	8	A	1	0	2	1	1	0	81	92	30.10	4500	8	J094383
100219	200759	C	8/13/70	G62	69	PONT	CATAL	22269	400	8	A	1	0	2	1	1	0	81	92	30.10	4500	8	P8W145
100242	200935	C	10/14/70	G62	69	PONT	CATAL	11189	400	9	0	1	0	2	1	1	0	69	33	30.53	4500	8	J010292
100302	200886	C	10/05/70	G62	66	PONT	CATAL	35304	400	8	0	1	0	2	1	1	0	71	59	29.99	4000	8	AN3121
100515	201329	C	2/10/71	G62	69	PONT	CATAL	31098	400	8	0	1	0	2	1	1	0	73	17	29.75	4500	8	J059408
100525	201547	C	3/24/71	G62	68	PONT	EXECU	49203	400	8	0	1	0	2	1	1	0	74	16	31.60	4500	8	A9L372
100526	201561	C	3/27/71	G62	69	PONT	GTO	26433	400	8	0	1	0	2	1	1	0	78	37	29.58	4000	8	CN3972
100526	201567	R	3/29/71	G62	69	PONT	GTO	26440	400	8	0	1	0	2	1	1	0	72	33	30.17	3500	8	CN3972
100031	200689	C	7/31/70	G63	69	PONT	BONNE	18531	428	8	A	1	0	4	1	1	0	86	101	29.88	4500	8	CH4247
100134	200949	C	10/16/70	G63	69	PONT	BONNE	24908	428	8	0	1	0	4	1	1	0	72	35	30.89	4500	8	X9P777
100209	200961	C	10/27/70	G63	69	PONT	GRAND	17392	428	8	0	1	0	4	1	1	0	75	52	30.26	4000	8	JO29729
100241	200705	C	8/04/70	G63	68	PONT	BONNE	37011	428	8	A	1	0	4	1	1	0	86	97	30.11	4500	8	JO37960
100290	200914	C	10/09/70	G63	69	PONT	BONNE	22406	428	8	0	1	0	4	1	1	0	69	87	29.70	4500	8	PA7183
100290	200919	H																					
100333	200973	C	11/02/70	G63	69	PONT	BONNE	34979	428	8	0	1	0	4	1	1	0	78	19	30.39	4500	8	J0R0065
100380	200695	C	8/03/70	G63	69	PONT	BONNE	16670	428	8	A	1	0	4	1	1	0	85	98	30.05	4500	8	Y94107
100392	200695	C	7/30/70	G63	69	PONT	BONNE	20302	428	8	A	1	0	4	1	1	0	86	98	29.90	4500	8	GR5155
100451	201615	C	4/06/71	G63	69	PONT	GRAND	47157	428	8	0	1	0	4	1	1	0	74	18	30.33	4000	8	XP4227
100451	201616	R	4/07/71	G63	69	PONT	GRAND	47163	428	8	0	1	0	4	1	1	0	74	8	30.27	4000	8	XP4227
100527	201345	C	2/13/71	G63	69	PONT	STAWA	24552	428	8	0	1	0	4	1	1	0	72	18	30.25	5000	8	J0R251
100021	200885	C	10/05/70	G66	68	OLDS	CUTLA	25593	350	8	0	1	0	2	1	1	0	71	59	29.99	4000	8	KA3085
100064	200964	C	10/27/70	G66	69	OLDS	CUTLA	18319	350	8	0	1	0	2	1	1	0	75	96	30.22	4000	8	J01078A
100094	200779	C	8/18/70	G66	68	OLDS	STAWA	39475	350	8	A	1	0	2	1	1	0	84	91	29.88	4500	8	Z94265
100095	200922	C	10/12/70	G66	69	OLDS	CUTLA	12319	350	8	0	1	0	2	1	1	0	69	54	30.05	4000	8	AY84247
100113	200895	C	10/06/70	G66	69	OLDS	CUTLA	34674	350	8	0	1	0	2	1	1	0	70	75	29.88	4000	8	M52467
100123	200894	C	10/06/70	G66	69	OLDS	CUTLA	12614	350	8	0	1	0	2	1	1	0	70	75	29.88	4000	8	KR9841
100160	200965	C	10/28/70	G66	69	OLDS	CUTLA	44623	350	8	0	1	0	2	1	1	0	70	75	29.88	4000	8	GS1708
100175	200891	C	10/06/70	G66	69	OLDS	DELTA	16087	350	8	0	1	0	2	1	1	0	70	48	30.29	4000	8	MR4319
100194	200762	C	8/14/70	G66	68	OLDS	CUTLA	11159	350	8	A	1	0	2	1	1	0	70	75	29.93	4500	8	FN7407
100234	200769	C	8/17/70	G66	69	OLDS	CUTLA	14329	350	8	A	1	0	2	1	1	0	82	90	30.04	4000	8	FX1495
100285	200780	C	8/18/70	G66	68	OLDS	CUTLA	23647	350	8	A	1	0	2	1	1	0	83	93	30.13	4000	8	RM3965
100285	200781	H																84	91	29.87	4000	8	RM3965
100303	200940	C	10/14/70	G66	69	OLDS	CUTLA	18741	350	8	0	1	0	2	1	1	0	69	33	30.52	4000	8	Z14739
100303	200949	R	10/15/70	G66	69	OLDS	CUTLA	18747	350	8	0	1	0	2	1	1	0	76	41	30.47	4000	8	Z14739
100349	200929	C	10/13/70	G66	69	OLDS	STAWA	34443	350	8	0	1	0	2	1	1	0	69	49	30.24	4500	8	CP1878
100505	201511	C	3/18/71	G66	69	OLDS	CUTLA	19419	350	8	0	1	0	2	1	1	0	76	21	29.25	4000	8	P8L236
100092	200707	C	8/05/70	G67	69	OLDS	NINET	13247	455	8	A	1	0	4	1	1	0	85	103	30.03	4500	8	9640
100176	200887	C	10/05/70	G67	69	OLDS	NINET	33014	455	8	0	1	0	4	1	1	0	71	59	29.97	4500	8	YA8921
100287	200970	C	10/30/70	G67	69	OLDS	NINET	21933	455	8	0	1	0	4	1	1	0	74	37	30.31	4500	8	J050004
100314	200893	C	10/06/70	G67	68	OLDS	NINET	33661	455	8	0	1	0	4	1	1	0	70	75	29.94	4500	8	Y13302

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE II — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMP	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100320	200694	C	8/03/70	G67	68	OLDS	NINFT	48765	455	8	A	1	0	4	1	1	0	85	98	30.06	4500	8	Y6P959
100349	200712	C	8/06/70	G67	69	OLDS	NINFT	34315	455	8	A	1	0	4	1	1	0	85	103	30.02	4500	8	J07287
100361	200791	C	8/19/70	G67	69	OLDS	NINFT	29423	455	8	A	1	0	4	1	1	0	86	94	29.90	4500	8	9F2973
100366	200920	C	10/09/70	G67	68	OLDS	NINFT	43479	455	8	0	1	0	4	1	1	0	69	87	29.70	4500	8	J075056
100371	200879	C	10/01/70	G67	68	OLDS	NINFT	33919	455	8	0	1	0	4	1	1	0	75	57	30.01	4500	8	HR3229
100373	201594	C	4/02/71	G67	69	OLDS	DELTA	46357	455	8	0	1	0	4	1	1	0	74	19	30.06	4500	8	DP130
100373	201602	H																					
100373	201601	R	4/03/71	G67	69	OLDS	DELTA	46369	455	8	0	1	0	4	1	1	0	71	20	30.10	4500	8	DP130
100379	200878	C	10/01/70	G67	69	OLDS	NINFT	23445	455	8	C	1	0	4	1	1	0	71	64	30.01	4500	8	AP4014
100399	200892	C	10/06/70	G67	68	OLDS	DELTA	22223	455	8	0	1	0	4	1	1	0	70	61	29.93	4500	8	XBP387
100018	200824	C	8/25/70	G71	68	BUIC	LESAB	50833	350	8	A	1	0	4	1	1	0	77	70	30.16	4500	8	S6W102
100018	200825	H																					
100042	200991	C	10/16/70	G71	68	BUIC	LESAB	36140	350	8	0	1	0	4	1	1	0	80	26	30.90	4500	8	GA4591
100042	200992	H																					
100070	200889	C	10/05/70	G71	68	BUIC	LESAB	71632	350	8	0	1	0	4	1	1	0	71	60	29.93	4500	8	Z3W952
100070	200890	H																					
100103	200831	C	8/26/70	G71	69	BUIC	LESAB	26606	350	8	A	1	0	4	1	1	0	78	76	30.12	4500	8	J042433
100154	200773	C	8/17/70	G71	69	BUIC	LESAB	21269	350	8	A	1	0	4	1	1	0	84	93	30.13	4500	8	PBY163
100154	200774	R	8/18/70	G71	69	BUIC	LESAB	21276	350	8	A	1	0	4	1	1	0	82	91	29.90	4500	8	PBY163
100185	200767	C	8/17/70	G71	68	BUIC	LESAB	19199	350	8	A	1	0	4	1	1	0	83	93	30.12	4500	8	Y1T463
100254	200842	C	8/27/70	G71	68	BUIC	LESAB	17036	350	8	A	1	0	4	1	1	0	81	77	30.13	4500	8	Z8N780
100300	200896	C	10/06/70	G71	68	BUIC	LESAB	44440	350	8	0	1	0	4	1	1	0	70	75	29.88	4500	8	J031843
100304	200844	C	10/05/70	G71	69	BUIC	STAGA	12837	350	8	0	1	0	4	1	1	0	71	60	29.95	4500	8	SA6654
100327	200775	C	8/18/70	G71	69	BUIC	LESAB	14489	350	8	A	1	0	4	1	1	0	82	91	29.90	4500	8	WY26386
100329	201529	C	3/23/71	G71	68	BUIC	LESAB	43615	350	8	0	1	0	4	1	1	0	68	24	30.32	4500	8	KZ8776
100331	200647	C	7/31/70	G72	69	BUIC	RIVIE	22970	430	8	A	1	0	4	1	1	0	86	102	29.88	4500	8	C86210
100094	201070	C	12/03/70	G72	69	BUIC	ELECT	50209	430	8	0	1	0	4	1	1	0	73	31	30.33	4500	8	MW6235
100261	200953	C	10/21/70	G72	69	BUIC	ELECT	11596	430	8	0	1	0	4	1	1	0	74	50	30.30	4500	8	KS3061
100262	200844	C	8/31/70	G72	68	BUIC	ELECT	50219	430	8	A	1	0	4	1	1	0	84	87	30.31	4500	8	GT1662
100294	200688	C	7/31/70	G72	69	BUIC	WILDC	15183	430	8	A	1	0	4	1	1	0	86	102	29.87	4500	8	EP3465
100315	200843	C	8/27/70	G72	68	BUIC	WILDC	36846	430	8	A	1	0	4	1	1	0	83	80	30.14	4500	8	9M9600
100317	200710	C	8/05/70	G72	69	BUIC	WILDC	26385	430	8	A	1	0	4	1	1	0	86	102	30.00	4500	8	J011455
100317	200711	H																					
100323	200841	C	8/27/70	G72	69	BUIC	ELECT	67934	430	8	A	1	0	4	1	1	0	81	77	30.13	4500	8	AM5988
100329	200680	C	7/30/70	G72	68	BUIC	ELECT	11192	430	8	A	1	0	4	1	1	0	86	100	29.91	4500	8	J066918
100331	200644	C	7/27/70	G72	68	BUIC	RIVIE	37003	430	8	A	1	0	4	1	1	0	82	90	30.09	4500	8	J090672
100341	200897	C	10/06/70	G72	68	BUIC	ELECT	46961	430	8	0	1	0	4	1	1	0	70	75	29.88	4500	8	JD27279
100360	201646	C	4/16/71	G72	68	BUIC	WILDC	52659	430	8	0	1	0	4	1	1	0	71	32	29.65	4500	8	GW7094
100360	201647	H																					
100360	201648	R	4/19/71	G72	68	BUIC	WILDC	52647	430	8	0	1	0	4	1	1	0	72	67	29.82	4500	8	GW7084
100157	200783	C	8/19/70	G76	68	CADI	DEVIL	40992	472	8	A	1	0	4	1	2	0	83	95	29.86	5000	8	WY9433
100189	200898	C	10/07/70	G76	69	CADI	SEDAN	19500	472	8	0	1	0	4	1	2	0	73	79	29.93	5000	8	MW8970
100227	200801	C	8/21/70	G76	69	CADI	DEVIL	38402	472	8	A	1	0	4	1	2	0	82	91	30.04	5000	8	WY3843
100291	200966	C	10/29/70	G76	68	CADI	COUPE	47012	472	8	0	1	0	4	1	2	0	70	36	30.18	5000	8	559746
100340	200834	C	8/26/70	G76	68	CADI	DEVIL	49952	472	8	A	1	0	4	1	2	0	79	74	30.13	5000	8	J066849
100345	200766	C	8/14/70	G76	69	CADI	DEVIL	23980	472	8	A	1	0	4	1	2	0	85	88	29.98	5000	8	Y1T199
100351	200972	C	10/30/70	G76	69	CADI	COUPE	31203	472	8	0	1	0	4	1	2	0	74	29	30.31	5000	8	AM1881
100367	200934	C	10/14/70	G76	69	CADI	SEDAN	12499	472	8	0	1	0	4	1	2	0	68	35	30.52	5000	8	J012787
100367	200948	R	10/15/70	G76	69	CADI	SEDAN	12704	472	8	0	1	0	4	1	2	0	76	41	30.84	5000	8	J012787
100397	200957	C	10/22/70	G76	68	CADI	DEVIL	43153	472	8	0	1	0	4	1	2	0	72	62	30.11	5000	8	J060449
100404	200919	C	10/29/70	G76	69	CADI	CALAI	11430	472	8	0	1	0	4	1	2	0	69	87	29.70	5000	8	J085176
100411	200959	C	10/23/70	G76	68	CADI	DEVIL	46834	472	8	0	1	0	4	1	2	0	72	72	29.93	5000	8	J088523
100423	200867	C	9/16/70	G76	68	CADI	DEVIL	38931	472	8	0	1	0	4	1	2	1	68	72	30.41	5000	8	Y1R278
100004	200883	C	10/02/70	V81	69	VOLK	STAND	20749	91	4	4	1	0	1	1	1	0	75	40	30.01	2000	4	J049092
100010	200673	C	7/28/70	V81	69	VOLK	STAND	17327	91	4	4	0	0	1	1	1	0	85	91	30.09	2000	4	LC976
100055	200993	C	11/05/70	V81	69	VOLK	STAND	21955	91	0	A	0	0	1	1	1	0	74	29	30.46	2000	4	GW1342
100109	200861	C	9/15/70	V81	68	VOLK	STAND	26619	91	4	4	0	0	1	1	1	0	77	69	30.28	2000	4	Y98034
100118	200730	C	8/10/70	V81	68	VOLK	STAND	20943	91	4	M	0	0	1	1	1	0	80	95	30.00	2000	4	GW3876
100124	200729	C	8/10/70	V81	68	VOLK	STAND	36931	91	4	M	0	0	1	1	1	0	80	95	30.00	2000	4	CR4499
100146	200851	C	9/10/70	V81	68	VOLK	STAND	26749	91	4	1	0	0	1	1	1	0	69	90	30.49	2000	4	XBP959
100159	200977	C	11/03/70	V81	68	VOLK	STAND	22294	91	4	4	0	0	1	1	1	0	76	64	30.18	2000	4	K56455
100159	200978	H																					
100164	200688	C	7/30/70	V81	68	VW	STD	41194	91	4	M	0	0	1	1	1	C	86	98	29.90	2000	4	ER5086
100165	200793	C	8/20/70	V81	68	VOLK	STAND	19239	91	4	M	0	0	1	1	1	0	84	93	30.04	2000	4	JD26406
100181	200679	C	7/29/70	V81	69	VOLK	STAND	22926	91	4	M	0	0	1	1	1	0	85	99	30.06	2000	4	JD78115
100182	200772	C	8/17/70	V81	69	VOLK	STAND	31127	91	4	A	0	0	1	1	1	0	84	93	30.14	2000	4	GR6841
100182	200782	R	8/18/70	V81	69	VOLK	STAND	31134	91	4	A	0	0	1	1	1	0	84	91	29.88	2000	4	GR6841
100500	201469	C	3/16/71	V81	69	VOLK	STAND	25560	91	4	4	0	0	1	1	1	0	74	19	29.85	2000	4	ST4370
100504	201525	C	3/22/71	V81	69	VOLK	STAND	14084	91	4	4	0	0	1	1	1	0	70	32	30.23	2000	4	JD53778
100513	201526	C	3/22/71	V81	68	VOLK	STAND	44484	91	4	4	0	0	1	1	1	0	70	32	30.25	2000	4	YR4462
100139	200923	C	10/12/70	V82	68	VOLK	SQRK	25997	97	4	4	0	1	0	1	1	0	69	98	30.10	2500	4	JD33918
100196	200829	C	8/25/70	V82	68	VOLK	SQRK	51427	97	4	M	0	1	0	1	1	0	84	64	30.15	2500	4	8243433
100200	200840	C	8/26/70	V82	69	VOLK	SQRK	21485	97	4	A	0	1	0	1	1	0	86	76	30.17	2500	4	WY40223
100205	201029	C	11/13/70	V82	68	VOLK	FTPK	29399	97	4	4	0	1	0	1	1	0	74	21	30.93	2500	4	KS1087
100205	201024	R	11/14/70	V82	68	VOLK	FTPK	29393	97	4	4	0	1	0	1	1	0	75	23	30.93	2500	4	KS1087
100224	200830	C	8/25/70	V82	68	VOLK	SQRK	18423	97	4	M	0	1	0	1	1	0	86	64	30.14	2500	4	CR4432
100229	200876	C	8/30/70	V82	69	VOLK	SQRK	23296	97	4	4	0	1	0	1	1	0	78	52	30.05	2500	4	KB7007
100258	200875	C	11/02/70	V82	68	VOLK	SQRK	40374	97	4	4	0	1	0	1	1	0	78	23	30.17	2500	4	PW4012
100269	200884	C	10/02/70	V82	68	VOLK	SQRK	47214	97	4	4	1	1	0	1	1	0	75	41	29.92	2500	4	JD29760
100270	200882	C	10/02/70	V82	69	VOLK	SQRK	17834	97	4	0	0	1	0	1	1	0	69	90	30.05	2500	4	MR7932

COLD START VEHICLE INFORMATION KANSAS CITY PHASE II PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	FVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100271	200639	C	7/17/70	V82	69	VOLK	FTBK	16337	97	4	A	0	1	0	1	1	0	85	90	29.95	2500	4	WY53651
100283	200877	C	9/30/70	V82	68	VOLK	SQBK	38824	97	4	4	0	1	0	1	1	0	78	52	30.12	2500	4	KS9284
100299	200665	C	7/27/70	V82	68	VOLK	SQBK	22961	97	4	M	0	1	0	1	1	0	82	90	30.08	2500	4	S9W630
100301	200674	C	7/28/70	V82	68	VOLK	SQBK	21133	97	4	M	0	1	0	1	1	0	85	91	30.11	2500	4	WY27783
100374	200881	C	10/02/70	V82	68	VOLK	SQBK	60426	97	4	4	0	1	0	1	1	0	69	50	30.02	2500	4	JO27014

TABLE A-3

Kansas City

Phase III

COLD START VEHICLE INFORMATION — KANSAS CITY CHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100150	301765	C	10/07/71	A01	69	AMER	REBEL	12456	232	6	0	0	0	1	1	1	0	75	85	30.30	3500	8	780652
100210	301257	C	1/23/71	A01	69	AMER	JAVEL	31295	232	6	3	1	0	1	1	1	0	73	32	29.90	3000	8	JO24640
100234	301004	C	11/09/70	A01	69	AMER	REBEL	24394	232	6	0	0	0	1	1	1	0	73	44	29.96	3500	8	WY10633
100250	301714	C	9/22/71	A01	69	AMER	JAVEL	22227	232	6	0	1	0	1	1	1	0	70	61	30.13	3000	8	JOR3357
100350	301154	H																					
100401	300991	C	11/05/70	A01	69	AMER	RAMBL	22326	232	6	0	1	0	1	1	1	0	74	29	30.64	3000	8	KS1101
100433	301743	C	9/29/71	A01	69	AMER	REBEL	20407	232	6	0	0	0	1	1	1	0	85	126	30.20	3500	8	K35300
100406	300995	C	11/06/70	A01	69	AMER	JAVEL	31308	232	6	3	0	0	1	1	1	0	74	33	30.10	3000	8	PX6658
100404	300996	H																					
100417	300987	C	11/05/70	A01	69	AMER	RAMBL	18612	232	6	0	0	0	1	1	1	0	74	29	30.63	3000	8	Y3N043
100435	301820	C	10/25/71	A01	69	AMER	REBEL	38941	232	6	0	0	0	1	1	1	0	69	63	30.00	3500	8	WY47597
100250	301723	R	9/23/71	A01	69	AMER	JAVEL	22227	232	6	0	1	0	1	1	1	0	73	74	30.20	3000	8	JOR3357
100052	301205	C	1/12/71	C11	69	PLYM	VALIA	35121	225	6	0	0	0	1	1	1	0	73	19	30.80	3000	8	JA2119
100169	301262	C	1/26/71	C11	68	DODG	DART	54886	225	6	0	0	0	1	1	1	0	72	14	30.33	3000	8	SW3725
100224	301194	C	1/09/71	C11	69	PLYM	BELVE	18300	225	6	3	1	0	1	1	1	0	75	28	30.25	3500	8	WY2354A
100224	301195	H																					
100243	301366	C	2/16/71	C11	69	PLYM	VALIA	18391	225	6	0	0	0	1	1	1	0	76	16	29.85	3000	8	ST6820
100249	301367	H																					
100263	301003	C	11/09/70	C11	68	PLYM	BARAC	57901	225	6	0	0	0	1	1	1	0	73	44	29.97	3500	8	JO73128
100274	301789	C	10/14/71	C11	69	DODG	DART	36671	225	6	3	0	0	1	1	1	0	76	84	30.00	3000	8	K35041
100294	301008	C	11/10/70	C11	69	DODG	DART	41553	225	6	0	0	0	1	1	1	0	70	32	30.40	3000	8	PA3350
100286	301005	C	11/09/70	C11	69	DODG	DART	19384	225	6	3	0	0	1	1	1	0	74	42	29.98	3000	8	JO91064
100286	301006	H																					
100326	301021	C	11/13/70	C11	69	DODG	DART	25169	225	6	N	0	0	1	1	1	0	74	22	30.30	3000	8	EP1773
100358	301115	C	12/14/70	C11	68	DODG	DART	30325	225	6	0	0	0	1	1	1	0	75	23	30.80	3000	8	SX9633
100274	301790	R	10/15/71	C11	69	DODG	DART	36680	225	6	3	0	0	1	1	1	0	70	70	30.00	3000	8	K35041
100012	301207	C	1/12/71	C12	68	PLYM	SATEL	47829	318	8	0	1	0	2	1	1	0	73	19	30.75	3500	8	JO35965
100036	301012	C	11/10/70	C12	68	PLYM	STAWA	35187	318	8	0	1	0	2	1	1	0	70	32	30.41	4000	8	AN1249
100051	301428	C	3/01/71	C12	68	PLYM	SATEL	65238	318	8	3	1	0	2	1	1	0	76	23	29.95	3500	8	A5H779
100059	301066	C	12/02/70	C12	69	PLYM	FURY	22510	318	8	0	1	0	2	1	1	0	70	35	30.72	4000	8	MW7339
100120	301728	C	9/24/71	C12	69	PLYM	FURY	54813	318	8	0	1	0	2	1	1	0	71	76	30.40	4000	8	EIP934
100128	301230	C	1/16/71	C12	68	PLYM	FURY	26575	318	8	0	1	0	2	1	1	0	78	19	30.60	4000	8	AN6911
100162	301059	C	12/01/70	C12	69	DODG	CHARG	49508	318	8	0	1	0	2	1	1	0	76	46	30.30	3500	8	S56907
100170	301102	C	12/11/70	C12	68	PLYM	STAWA	43477	318	8	0	1	0	2	1	1	0	72	25	30.57	4000	8	JO77310
100520	301788	C	10/14/71	C12	69	PLYM	FURY	33053	318	8	0	0	0	2	1	1	0	74	83	30.02	4000	8	DGC1061
100120	301732	R	9/27/71	C12	69	PLYM	FURY	54194	318	8	0	1	0	2	1	1	0	84	115	30.18	4000	8	EIP934
100033	301007	C	11/10/70	C13	69	CHRY	NEWPO	17495	383	8	0	1	0	2	1	1	0	69	33	30.41	4500	8	MT3508
100085	301057	C	11/30/70	C13	69	DODG	CHARG	22914	383	8	0	1	0	2	1	1	0	76	22	30.35	4000	8	JO37839
100090	301050	C	11/25/70	C13	68	CHRY	NEWPO	40914	383	8	0	1	0	2	1	1	0	74	26	30.15	4500	8	31X962
100099	301001	C	11/09/70	C13	68	CHRY	NEWPO	42446	383	8	0	1	0	2	1	1	0	73	44	29.96	4500	8	XN5170
100099	301002	H																					
100117	301107	C	12/12/70	C13	69	PLYM	STAWA	53303	383	8	0	1	0	2	1	1	0	73	23	30.63	4000	8	JO18077
100133	301234	C	1/19/71	C13	69	CHRY	NEWPO	38793	383	8	0	1	0	2	1	1	0	74	28	31.12	4500	8	EN7604
100167	301215	C	1/14/71	C13	69	DODG	POLAR	25742	383	8	0	1	0	2	1	1	0	76	22	30.78	4000	8	JO53701
100174	301219	C	1/15/71	C13	68	DODG	STAWA	35696	383	8	0	1	0	2	1	1	0	72	16	31.23	5000	8	BP5167
100222	301763	C	10/07/71	C13	68	CHRY	NEWPO	99999	383	8	0	1	0	2	1	1	0	73	78	30.32	4500	8	PR5860
100222	301770	R	10/07/71	C13	66	CHRY	NEWPO	99999	383	8	0	1	0	2	1	1	0	73	88	30.28	4500	8	PR5860
100101	301785	C	10/13/71	C14	68	CHRY	IMPER	41814	440	8	0	1	0	4	1	1	0	76	94	30.12	5500	8	C3P717
100197	301706	C	8/24/71	C14	69	CHRY	NEWYO	26559	440	8	0	1	0	4	1	1	0	82	91	29.85	4500	8	PS7977
100226	301014	C	11/11/70	C14	69	CHRY	NEWYO	28645	440	8	0	1	0	4	1	1	0	72	41	30.19	4500	8	AM6145
100266	301046	C	11/23/70	C14	69	DODG	CHARG	22731	440	8	0	1	0	4	1	1	0	68	16	31.23	4000	8	WY11908
100277	301015	C	11/12/70	C14	69	CHRY	NEWYO	44650	440	8	0	1	0	4	1	1	0	70	36	30.24	4500	8	K53233
100277	301016	H																					
100306	301020	C	11/12/70	C14	69	DODG	CHARG	28893	440	8	0	1	0	4	1	1	0	70	36	30.20	4000	8	GT1832
100321	301272	C	1/29/71	C14	69	CHRY	STAWA	24673	440	8	0	1	0	4	1	1	0	71	17	29.57	5000	8	SS7457
100342	301043	C	11/23/70	C14	69	CHRY	THREE	32082	440	8	0	1	0	4	1	1	0	75	31	30.56	4500	8	EM5179
100441	301223	C	1/15/71	C14	68	DODG	CHARG	45896	440	8	0	1	0	4	1	1	0	74	17	31.23	4000	8	JO36166
100101	301796	R	10/14/71	C14	68	CHRY	IMPER	41831	440	8	0	1	0	4	1	1	0	71	78	30.02	5500	8	C3P717
100142	301113	C	12/12/70	F31	69	FORD	MUSTA	34074	200	6	0	1	0	1	1	1	0	73	23	30.65	3000	8	AP7788
100187	300994	C	11/06/70	F31	68	FORD	FALCO	18970	200	6	0	1	0	1	1	1	0	74	34	30.10	3000	8	Z6M780
100213	301132	C	12/17/70	F31	68	FORD	FALCO	45710	200	6	0	1	0	1	1	1	0	76	26	30.43	3500	8	Z4A989
100213	301133	H																					
100295	301500	C	3/17/71	F31	68	FORD	MUSTA	22712	200	6	0	1	0	1	1	1	0	74	30	30.15	3000	8	ER5192
100295	301501	H																					
100292	301044	C	11/20/70	F31	68	FORD	MUSTA	52466	200	6	0	0	0	1	1	1	0	75	31	30.56	3000	8	JA1206
100328	301055	C	11/30/70	F31	68	FORD	STAWA	50052	200	6	0	0	0	1	1	1	0	72	29	30.40	3500	8	WY48016
100344	301746	C	9/30/71	F31	69	FORD	FALCO	25820	200	6	0	0	0	1	1	1	0	80	104	30.30	3000	8	P8Y610
100381	301381	C	2/20/71	F31	69	FORD	FALCO	54232	200	6	0	1	0	1	1	1	0	74	30	29.95	3000	8	ZM1602
100381	301394	H																					
100433	300997	C	11/06/70	F31	68	FORD	FALSW	33389	200	6	0	0	0	1	1	1	0	74	34	30.10	3500	8	ST2193
100433	300998	H																					
100381	301381	R	2/22/71	F31	69	FORD	FALCO	54238	200	6	0	1	0	1	1	1	0	71	41	29.05	3000	8	ZM1602
100358	301709	C	8/24/71	F32	70	FORD	MAVER	37413	201	6	0	0	0	1	1	1	0	85	97	29.85	3000	8	WYM2760
100342	301739	C	9/28/71	F32	70	FORD	MAVER	32506	201	6	0	0	0	1	1	1	0	84	121	30.20	3000	8	JOM9237
100347	301032	C	11/16/70	F32	70	FORD	MAVER	24144	201	6	0	0	0	1	1	1	0	75	24	30.55	3000	8	WY22772
100348	301490	C	3/18/71	F32	70	FORD	MAVER	25439	201	6	0	1	0	1	1	1	0	76	16	30.10	3000	8	CF652
100348	301491	H																					
100394	301049	C	12/08/70	F32	70	FORD	MAVER	30379	201	6	0	1	0	1	1	1	0	76	26	30.48	3000	8	WY22479
100405	301677	C	6/27/71	F32	70	FORD	MAVER	24799	201	6	3	0	0	1	1	1	0	69	69	29.64	3000	8	GW1592
100414	301022	C	11/13/70	F32	70	FORD	MAVER	20232	201	6	0	1	0	1	1	1	0	74	22	30.30	3000	8	WR4791

KANSAS CITY PHASE III — PROCESSING DATE- 03/27/72

COLD START VEHICLE INFORMATION																									
CAN NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100429	301227	C	1/15/71	F32	70	FORD	MAVER	25944	201	6	0	0	0	1	1	1	0	74	17	31.25	3000	8	PS2813
100432	301444	C	3/04/71	F32	70	FORD	MAVER	14987	200	6	0	0	0	1	1	1	0	71	24	29.87	3000	8	K57634
100444	301108	C	12/12/70	F32	70	FORD	MAVER	22268	201	6	3	0	0	1	1	1	0	73	23	30.65	3000	8	X1R369
100446	301485	C	3/15/71	F32	70	FORD	MAVER	24111	201	6	0	1	0	1	1	1	0	72	46	29.52	3000	8	ZJ8577
100447	301492	C	3/04/71	F32	70	FORD	MAVER	20174	200	6	0	1	0	1	1	1	0	72	23	29.70	3000	8	B08561
100447	301493	H																					
100509	301779	C	10/12/71	F32	70	FORD	MAVER	24141	200	6	3	1	0	1	1	1	0	73	84	30.14	2500	8	647828
100508	301783	R	10/13/71	F32	70	FORD	MAVER	24144	200	6	3	1	0	1	1	1	0	74	82	30.20	2500	8	647828
100017	301073	C	12/03/70	F33	68	FORD	CUSTO	40069	302	8	0	1	0	2	1	1	0	73	30	30.60	4000	8	MY33149
100037	301019	C	11/12/70	F33	69	FORD	TORIN	29351	302	8	0	1	0	2	1	1	0	70	36	30.22	3500	8	BP3342
100058	301292	C	2/02/71	F33	68	MERC	CYCLO	46949	302	8	0	1	0	2	1	1	0	76	19	30.20	3500	8	A74337
100059	301293	H																					
100065	301060	C	12/02/70	F33	68	MERC	MONTE	24963	302	8	0	1	0	2	1	1	0	70	31	30.73	3500	8	J0J6037
100071	301026	C	11/16/70	F33	68	FORD	FAIRL	52361	302	8	0	0	0	2	1	1	0	75	23	30.64	4000	8	CR1105
100088	301494	C	3/16/71	F33	69	FORD	FAIRL	14991	302	8	0	1	0	2	1	1	0	76	15	30.13	3500	8	J054125
100089	301495	H																					
100147	301023	C	11/13/70	F33	69	FORD	GALAX	37084	302	8	0	1	0	2	1	1	0	74	22	30.30	4000	8	EP2656
100147	301024	H																					
100155	301090	C	12/08/70	F33	68	FORD	GALAX	40914	302	8	0	1	0	2	1	1	0	76	26	30.37	4000	8	J077325
100155	301093	H																					
100204	301126	C	12/16/70	F33	68	FORD	CUSTO	69179	302	8	0	0	0	2	1	1	0	74	26	30.28	4000	8	J010958
100223	301303	C	2/04/71	F33	69	FORD	TORIN	41722	302	8	0	1	0	2	1	1	0	70	24	30.82	4500	8	A6W192
100519	301744	C	9/30/71	F33	69	FORD	CUSTO	21375	302	8	0	0	0	2	1	1	0	77	23	29.35	4000	8	A6W192
100155	301092	R	12/09/70	F33	68	FORD	GALAX	40922	302	8	0	1	0	2	1	1	0	74	32	30.66	4000	8	J077325
100519	301755	R	10/01/71	F33	69	FORD	CUSTO	21382	302	8	0	0	0	2	1	1	0	73	79	30.24	4000	8	A4N461
100152	301034	C	11/17/70	F34	69	FORD	MUSTA	29379	351	8	0	1	0	2	1	1	0	76	30	30.43	3500	8	J095195
100156	301042	C	11/19/70	F34	69	FORD	LTD	53232	351	8	0	1	0	2	1	1	0	76	43	30.03	4500	8	DG17311
100251	301048	C	11/24/70	F34	69	FORD	MUSTA	29446	351	8	0	1	0	2	1	1	0	72	13	30.96	3500	8	J09355
100339	301496	C	3/15/71	F34	69	FORD	FAIRL	28712	351	8	0	1	0	2	1	1	0	72	46	29.55	3500	8	YN9157
100339	301487	H																					
100361	301764	C	10/07/71	F34	69	MERC	COUGA	26429	351	8	0	1	0	2	1	1	0	74	87	30.32	4000	8	A8W387
100393	301074	C	12/04/70	F34	69	FORD	LTD	19311	351	8	0	1	0	2	1	1	0	70	24	30.82	4500	8	M51650
100427	301176	C	12/30/70	F34	69	FORD	MUSTA	30398	351	8	0	0	0	2	1	1	0	78	31	30.27	3500	8	AN5734
100439	301045	C	11/23/70	F34	69	FORD	MUSTA	27791	351	8	0	1	0	2	1	1	0	68	16	30.98	3500	8	P54653
100442	301062	C	12/02/70	F34	69	FORD	MUSTA	28139	351	8	3	0	0	2	1	1	0	70	35	30.73	3500	8	K59162
100453	301488	C	3/15/71	F34	69	MERC	COUGA	11769	351	8	0	1	0	2	1	1	0	77	22	29.62	4000	8	YM1521
100361	301767	R	10/08/71	F34	69	MERC	COUGA	26439	351	8	0	1	0	2	1	1	0	70	74	30.26	4000	8	A8W387
100453	301499	R	3/16/71	F34	69	MERC	COUGA	11769	351	8	0	1	0	2	1	1	0	74	12	30.11	4000	8	Y41521
100043	301061	C	12/02/70	F35	68	FORD	LTD	35181	390	8	0	1	0	2	1	1	0	70	31	30.73	4000	8	4204
100049	301703	C	8/23/71	F35	68	FORD	STAWA	22869	390	8	0	1	0	2	1	1	0	83	96	29.70	4000	8	K8R571
100069	301302	C	2/04/71	F35	69	FORD	GALAX	32929	390	8	0	1	0	2	1	1	0	77	23	29.45	4500	8	EP3808
100081	301031	C	11/16/70	F35	69	FORD	GALAX	34202	390	8	0	1	0	2	1	1	0	75	24	30.55	4500	8	J099422
100102	301214	C	1/14/71	F35	68	FORD	XL	39663	390	8	0	1	0	2	1	1	0	76	22	30.78	4000	8	Z94192
100119	301515	C	3/18/71	F35	68	FORD	XL	63583	390	8	0	0	0	2	1	1	0	76	21	29.11	4000	8	ZK4224
100127	301030	C	11/16/70	F35	69	FORD	STAWA	32444	390	8	0	1	0	2	1	1	0	75	24	30.55	4500	8	P54243
100305	301173	C	12/30/70	F35	68	FORD	GALAX	32471	390	8	0	1	0	2	1	1	0	78	31	30.36	4000	8	ZK5564
100305	301174	H																					
100308	301029	C	11/16/70	F35	69	FORD	STAWA	24726	390	8	0	1	0	2	1	1	0	75	27	30.58	4500	8	GW4138
100119	301516	R	3/19/71	F35	68	FORD	XL	63600	390	8	0	0	0	2	1	1	0	73	21	29.84	4000	8	ZK4224
100020	301801	C	10/16/71	F36	68	FORD	THUND	35487	429	8	0	1	0	4	1	1	0	77	98	30.04	5000	8	XL7987
100352	301748	C	9/30/71	F36	68	FORD	THUND	42120	429	8	0	1	0	4	1	1	0	84	133	30.34	5000	8	914859
100384	301736	C	9/28/71	F36	69	FORD	THUND	17279	429	8	0	1	0	4	1	1	0	81	114	30.19	5000	8	C3R631
100384	301737	H																					
100415	301120	C	12/15/70	F36	69	FORD	THUND	41269	429	8	0	1	0	4	1	1	0	75	28	30.34	5000	8	J071264
100415	301121	H																					
100416	301769	C	10/30/71	F36	68	FORD	THUND	33417	429	8	0	1	0	4	1	1	0	71	82	30.26	5000	8	WM1612
100425	301747	C	9/30/71	F36	69	FORD	THUND	28967	429	8	0	1	0	4	1	1	0	80	104	30.30	5000	8	J0R6539
100426	301760	C	10/07/71	F36	68	FORD	THUND	54209	429	8	0	1	0	4	1	1	0	72	75	30.32	5000	8	K57728
100428	301759	C	10/06/71	F36	69	MERC	BROUG	21251	429	8	0	1	0	4	1	1	0	73	79	30.20	4500	8	J0R2946
100430	301142	C	12/19/70	F36	69	FORD	STAWA	24164	429	8	0	1	0	4	1	1	0	72	28	30.80	4500	8	BR3802
100430	301143	H																					
100426	301768	R	10/08/71	F36	69	FORD	THUND	54206	429	8	0	1	0	4	1	1	0	71	77	30.24	5000	8	K57728
100257	301027	C	11/16/70	G51	68	CHEV	CHEVE	43741	230	6	0	0	0	1	1	1	0	75	23	30.63	3500	8	K55594
100278	301011	C	11/10/70	G51	68	CHEV	CHEVE	26447	230	6	0	1	0	1	1	1	0	70	32	30.41	3500	8	J097394
100337	301620	C	4/27/71	G51	68	CHEV	NOVA	33516	230	6	0	0	0	1	1	1	0	74	8	30.22	3500	8	EN9757
100337	301621	H																					
100370	301530	C	3/23/71	G51	68	CHEV	CHEVE	39529	230	6	0	1	0	1	1	1	0	70	21	30.32	3500	8	CP1877
100370	301544	H																					
100422	301013	C	11/11/70	G51	68	CHEV	NOVA	33709	230	6	0	0	0	1	1	1	0	72	41	30.19	3500	8	WB8596
100434	301009	C	11/10/70	G51	68	CHEV	NOVA	39949	230	6	0	1	0	1	1	1	0	70	32	30.41	3500	8	P75452
100434	301010	H																					
100436	301800	C	10/14/71	G51	68	CHEV	CAMAR	64498	230	6	0	0	0	1	1	1	0	73	89	30.02	3000	8	AB4967
100441	301625	C	4/08/71	G51	69	CHEV	NOVA	34934	230	6	0	0	0	1	1	1	0	76	28	29.63	3500	8	ZK1273
100452	301239	C	2/03/71	G51	69	CHEV	NOVA	33871	230	6	0	0	0	1	1	1	0	76	20	29.74	3500	8	KC7209
100370	301543	R	3/24/71	G51	68	CHEV	CHEVE	39537	230	6	0	1	0	1	1	1	0	74	18	30.22	3500	8	CP1877
100319	301614	C	4/26/71	G52	69	CHEV	NOVA	14437	250	6	0	0	0	1	1	1	0	74	14	30.42	3500	8	RM4929
100344	301077	C	12/04/70	G52	69	CHEV	BISCA	21435	250	6	3	1	0	1	1	1	0	73	23	30.70	4000	8	X99643
100362	301038	C	11/19/70	G52	69	CHEV	BISCA	44422	250	6	0	0	0	1	1	1	0	74	33	30.37	4000	8	PX4519
100372	301240	C	1/21/71	G52	69	CHEV	MALIB	30094	250	6	0	0	0	1	1	1	0	74	26	30.08	3500	8	ZL9015
100377	301141	C	1/02/71	G52	69	CHEV	MALIB	30272	250	6	0	0	0	1	1	1	0	76	37	30.69	3500	8	EN7253
100377	301142	H																					

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100395	301628	C	4/13/71	G52	69	CHEV	IMPAL	20275	250	6	0	1	0	1	1	1	0	72	40	30.25	4000	8	KR7236
100385	301629	H																					
100390	301494	C	3/13/71	G52	69	CHEV	NOVA	20436	250	6	0	0	0	1	1	1	0	75	26	29.30	3500	8	KC9753
100410	301612	C	4/06/71	G52	68	CHEV	CHEVE	26418	250	6	0	0	0	1	1	1	0	72	21	30.43	3500	8	SX8923
100419	301613	H																					
100413	301562	C	3/27/71	G52	68	CHEV	BELAI	59428	250	6	0	0	0	1	1	1	0	78	37	29.58	4000	8	GS8227
100419	301079	C	12/05/70	G52	69	CHEV	NOVA	38164	250	6	0	0	0	1	1	1	C	74	25	30.87	3500	8	SX8943
100419	301080	H																					
100420	301112	C	12/12/70	G52	68	CHEV	BELAI	17218	250	8	0	0	0	1	1	1	0	73	23	30.65	4000	8	AN3405
100455	301211	C	1/13/71	G52	69	CHEV	NOVA	30403	250	6	0	0	0	1	1	1	0	72	25	30.37	3500	8	XN5362
100413	301563	R	3/29/71	G52	68	CHEV	BELAI	59443	250	6	0	0	0	1	1	1	0	70	40	30.18	4000	8	GS8227
100009	301603	C	4/03/71	G53	68	CHEV	IMPAL	40357	307	8	0	1	0	2	1	1	C	71	20	30.10	4000	8	MS3830
100009	301604	H																					
100013	301593	C	4/02/71	G53	69	CHEV	CAMAR	33793	307	8	0	1	0	2	1	1	0	69	19	30.15	3500	8	KR8719
100028	301210	C	1/13/71	G53	68	CHEV	STAWA	42476	307	8	0	0	0	2	1	1	0	72	25	30.51	4500	8	JO4611
100129	301650	C	4/19/71	G53	69	CHEV	NOVA	30632	307	8	0	1	0	2	1	1	0	72	67	29.83	3500	8	WY14096
100145	301114	C	12/14/70	G53	68	CHEV	IMPAL	34921	307	8	0	1	0	2	1	1	0	75	23	30.80	4000	8	BA4294
100237	301180	C	12/31/70	G53	68	CHEV	IMPAL	25198	307	8	0	1	0	2	1	1	0	77	32	30.50	4000	8	XP8810
100243	301557	C	3/26/71	G53	69	CHEV	CHEVE	40264	307	8	0	0	0	2	1	1	0	75	24	30.15	3500	8	JO14649
100311	301124	C	12/16/70	G53	69	CHEV	CHEVE	28199	307	8	0	0	0	2	1	1	0	74	26	30.26	3500	8	AL8817
100311	301125	H																					
100357	301177	C	12/30/70	G53	68	CHEV	BISCA	51153	307	8	0	0	0	2	1	1	0	78	31	30.27	4000	8	XP3722
100357	301178	H																					
100437	301146	C	12/19/70	G53	68	CHEV	BELAI	15352	307	8	0	1	0	2	1	1	0	72	28	30.84	4000	8	AM3041
100243	301558	R	3/27/71	G53	69	CHEV	CHEVE	40276	307	8	0	0	0	2	1	1	0	74	16	29.57	3500	8	JO14649
100437	301147	R	12/21/70	G53	68	CHEV	BELAI	15352	307	8	0	1	0	2	1	1	0	74	33	30.46	4000	8	AM3041
100041	301256	C	1/22/71	G54	68	CHEV	IMPAL	37653	327	8	0	1	0	4	1	1	0	75	21	29.75	4000	8	EN7593
100054	301458	C	3/05/71	G54	68	CHEV	STAWA	36509	327	8	0	1	0	4	1	1	0	75	26	29.45	4500	8	XS4037
100063	301179	C	12/30/70	G54	68	CHEV	IMPAL	35941	327	8	0	1	0	4	1	1	0	78	31	30.27	4000	8	EA6283
100068	301470	C	3/09/71	G54	68	CHEV	STAWA	27918	327	8	0	1	0	4	1	1	0	72	50	29.73	4500	8	BZ4536
100087	301063	C	12/02/70	G54	68	CHEV	IMPAL	29523	327	8	0	1	0	4	1	1	0	70	35	30.70	4000	8	CA5268
100148	301483	C	3/08/71	G54	68	CHEV	STAWA	25235	327	8	0	1	0	4	1	1	0	78	9	30.00	4500	8	JO1313
100172	301729	C	9/24/71	G54	68	CHEV	BELAI	35898	327	8	0	1	0	4	1	1	0	73	78	30.38	4500	8	JOM2286
100198	301104	C	12/11/70	G54	68	CHEV	STAWA	77205	327	8	0	1	0	4	1	1	0	72	25	30.57	4500	8	MW9860
100211	301642	C	4/16/71	G54	68	CHEV	CAPRI	42563	327	8	0	1	0	4	1	1	0	71	32	29.68	4000	8	MR7184
100211	301643	H																					
100172	301734	R	9/28/71	G54	68	CHEV	BELAI	35903	307	8	0	1	0	4	1	1	0	80	110	30.14	4500	8	JOM2286
100098	301238	C	1/20/71	G55	69	CHEV	STAWA	41920	350	8	0	1	0	4	1	1	0	74	25	30.74	4000	8	GR5681
100053	301725	C	9/24/71	G55	69	CHEV	STAWA	26543	350	8	0	1	0	4	1	1	0	73	73	30.35	4500	8	JOE4315
100062	301094	C	12/09/70	G55	69	CHEV	STAWA	18185	350	8	0	1	0	4	1	1	0	71	37	30.70	4500	8	PS8186
100131	301088	C	12/08/70	G55	69	CHEV	STAWA	30953	350	8	0	1	0	4	1	1	0	76	26	30.47	4000	8	AM5912
100215	301228	C	1/16/71	G55	69	CHEV	IMPAL	17068	350	8	0	1	0	4	1	1	0	75	23	30.73	4000	8	CA4739
100216	301208	C	1/13/71	G55	69	CHEV	STAWA	37657	350	8	0	1	0	4	1	1	0	72	25	30.52	4500	8	YA6256
100235	301111	C	12/12/70	G55	69	CHEV	IMPAL	39027	350	8	0	1	0	4	1	1	0	73	23	30.66	4000	8	YM6851
100280	301099	C	12/10/70	G55	69	CHEV	IMPAL	19140	350	8	0	1	0	4	1	1	0	75	35	30.49	4000	8	CN8644
100318	301194	C	1/09/71	G55	69	CHEV	CAPRI	17774	350	8	0	1	0	4	1	1	0	74	36	30.99	4000	8	BP2116
100053	301730	R	9/27/71	G55	69	CHEV	STAWA	26560	350	8	0	1	0	4	1	1	0	83	117	30.18	4500	8	JOE4315
100296	301777	C	10/12/71	G56	68	CHEV	CHEVE	49293	396	8	0	1	0	4	1	1	0	72	81	30.12	4000	8	EL Y956
100336	301472	C	3/10/71	G56	69	CHEV	CHEVE	27353	396	8	0	1	0	4	1	1	0	71	24	29.87	4000	8	ST1657
100344	301204	C	1/12/71	G56	69	CHEV	CHEVE	20403	396	8	0	1	0	4	1	1	0	73	19	30.80	4000	8	JO80895
100350	301218	C	1/15/71	G56	69	CHEV	STAWA	20274	396	8	0	1	0	4	1	1	0	69	14	31.17	4500	8	WY13287
100389	301067	C	12/02/70	G56	69	CHEV	IMPAL	52383	396	8	0	0	0	4	1	1	0	70	35	30.72	4500	8	PSY396
100391	301202	C	1/11/71	G56	69	CHEV	CHEVE	30228	396	8	0	1	0	4	1	1	0	73	16	30.64	4000	8	MS3497
100400	301619	C	4/07/71	G56	68	CHEV	STAWA	32691	396	8	0	1	0	4	1	1	0	74	8	30.22	4500	8	JO12268
100296	301780	R	10/13/71	G56	68	CHEV	CHEVE	49305	396	8	0	1	0	4	1	1	0	71	77	30.22	4000	8	EL Y956
100399	301069	R	12/03/70	G56	68	CHEV	IMPAL	52390	396	8	0	0	0	4	1	1	0	72	53	30.22	4500	8	PSY396
100125	301644	C	4/16/71	G61	69	PONT	LEMAN	23575	350	8	0	1	0	2	1	1	0	71	32	29.68	4000	8	WY5524
100125	301645	H																					
100218	301083	C	12/07/70	G61	68	PONT	FIREB	29639	350	8	0	1	0	2	1	1	0	70	20	30.69	3500	8	WY75998
100219	301084	H																					
100240	301635	C	4/15/71	G61	68	PONT	TEMPE	35277	350	8	0	1	0	2	1	1	0	70	29	29.87	4000	8	JO64090
100240	301637	H																					
100267	301085	C	12/07/70	G61	68	PONT	TEMPE	30014	350	8	0	1	0	2	1	1	0	75	23	30.66	4000	8	JO10282
100267	301086	H																					
100272	301617	C	4/07/71	G61	68	PONT	LEMAN	37515	350	8	0	1	0	2	1	1	0	74	8	30.24	4000	8	JO21798
100272	301619	H																					
100273	301250	C	1/21/71	G61	68	PONT	TEMPE	43585	350	8	0	1	0	2	1	1	0	77	25	29.96	4000	8	XP2849
100279	301751	C	9/30/71	G61	69	PONT	LEMAN	29172	350	8	0	1	0	2	1	1	0	85	132	30.34	4000	8	JOV1307
100457	301228	C	1/16/71	G61	68	PONT	FIREB	19034	350	8	0	1	0	2	1	1	0	76	22	30.67	3500	8	KC7011
100502	301791	C	10/15/71	G61	68	PONT	LEMAN	46990	350	8	0	1	0	2	1	1	0	72	71	30.02	3500	8	SN4618
100279	301754	R	10/01/71	G61	68	PONT	LEMAN	29184	350	8	0	1	0	2	1	1	0	72	75	30.20	4500	8	JOV1307
100023	301624	C	4/13/71	G62	68	PONT	GTO	42892	400	8	0	1	0	2	1	1	0	72	41	30.10	4000	8	JO1031
100045	301635	C	4/03/71	G62	69	PONT	CATAL	19910	400	8	0	1	0	2	1	1	0	71	20	30.08	4500	8	MR4243
100103	301474	C	3/12/71	G62	69	PONT	CATAL	24174	400	8	0	1	0	2	1	1	0	70	26	29.63	4500	8	YN4723
100104	301188	C	1/08/71	G62	69	PONT	CATAL	29373	400	8	0	1	0	2	1	1	0	72	28	30.60	4500	8	JU41151
100214	301038	C	12/09/70	G62	69	PONT	EXECU	17019	400	8	0	1	0	2	1	1	0	71	37	30.70	4500	8	JO34383
100219	301100	C	12/10/70	G62	69	PONT	CATAL	30039	400	8	0	1	0	2	1	1	0	75	35	30.67	4500	8	PT2791
100242	301749	C	9/30/71	G62	69	PONT	CATAL	21751	400	8	0	1	0	2	1	1	0	84	133	30.34	4500	8	JO31159
100242	301750	H																					
100302	301821	C	10/26/71	G62	69	PONT	CATAL	39611	400	8	0	1	0	2	1	1	0	73	79	30.00	4000	8	AN3121

KANSAS CITY PHASE III — PROCESSING DATE- 03/27/72

COLD START VEHICLE CAR NO	RUN NO	S	INFORMATION --DATE--	MFG	YR	MAKE	MODEL	ODOMT	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100515	301727	C	9/26/71	G02	69	PONT	CATAL	42500	400	8	0	1	0	2	1	1	0	69	70	30.38	4500	8	JOJ1222
100515	301731	R	9/27/71	G02	69	PONT	CATAL	42512	400	8	0	1	0	2	1	1	0	83	111	30.16	4500	8	JOJ1222
100031	301141	C	12/19/70	G03	69	PONT	FONNE	24826	428	8	0	1	0	4	1	1	0	72	28	30.74	4500	8	CN4247
100134	301623	C	4/07/71	G03	69	PONT	FONNE	31509	428	8	0	1	0	4	1	1	0	76	27	30.00	4500	8	ZK3629
100209	301638	C	4/15/71	G03	69	PONT	GRAND	22839	429	8	0	1	0	4	1	1	0	70	29	29.80	4000	8	JO29729
100290	301712	C	9/02/71	G03	69	PONT	FONNE	32166	428	8	0	1	0	4	1	1	0	81	93	29.80	4500	8	PA7183
100339	301969	C	3/25/71	G03	69	PONT	FONNE	39471	428	8	0	1	0	4	1	1	0	72	29	30.03	4500	8	JOR3590
100380	301097	C	12/09/70	G03	69	PONT	FONNE	20379	428	8	0	1	0	4	1	1	0	74	32	30.70	4500	8	YM8529
100392	301109	C	12/12/70	G03	69	PONT	FONNE	30250	428	8	0	1	0	4	1	1	0	73	23	30.65	4500	8	GR5155
100392	301110	H																					
100527	301806	C	10/18/71	G03	69	PONT	STAWA	32129	428	8	0	1	0	4	1	1	0	75	96	30.10	5000	8	JOR291
100527	301807	R	10/19/71	G03	69	PONT	STAWA	32164	428	8	0	1	0	4	1	1	0	70	79	30.00	5000	8	JOR291
100021	301742	C	9/29/71	G06	68	OLDS	CUTLA	31666	350	8	0	1	0	2	1	1	0	85	120	30.20	4000	8	K5A221
100094	301122	C	12/15/70	G06	68	OLDS	STAWA	48441	350	8	0	1	0	2	1	1	0	75	28	30.30	4500	8	Z9M265
100113	301504	C	3/17/71	G06	68	OLDS	CUTLA	39639	350	8	0	1	0	2	1	1	0	74	30	29.97	4000	8	M52467
100113	301505	H																					
100123	301745	C	9/30/71	G06	69	OLDS	CUTLA	18162	350	8	0	1	0	2	1	1	0	78	96	30.26	4000	8	K7R735
100160	301713	C	9/02/71	G06	68	OLDS	CUTLA	58689	350	8	0	1	0	2	1	1	0	82	97	29.80	4000	8	G4A548
100175	301497	C	3/17/71	G06	69	OLDS	DELTA	19722	350	8	0	1	0	2	1	1	0	74	30	30.14	4500	8	MR4319
100175	301499	H																					
100184	301095	C	12/09/70	G06	68	OLDS	F85	14979	350	8	0	1	0	2	1	1	0	74	32	30.70	4000	8	EN7407
100184	301096	H																					
100234	301224	C	1/19/71	G06	69	OLDS	CUTLA	18883	350	8	0	1	0	2	1	1	0	74	17	31.25	4000	8	EX1495
100303	301506	C	3/17/71	G06	69	OLDS	CUTLA	22419	350	8	0	1	0	2	1	1	0	75	29	29.90	4000	8	A7L914
100303	301509	H																					
100369	301536	C	3/23/71	G06	68	OLDS	STAWA	40213	350	8	0	1	0	2	1	1	0	74	22	30.20	4500	8	CP1878
100369	301539	H																					
100303	301508	R	3/18/71	G06	69	OLDS	CUTLA	22419	350	8	0	1	0	2	1	1	0	76	21	29.31	4000	8	A7L914
100369	301539	R	3/24/71	G06	68	OLDS	STAWA	40221	350	8	0	1	0	2	1	1	0	74	18	30.24	4500	8	CP1878
100176	301711	C	9/01/71	G07	68	OLDS	NINET	46255	455	8	0	1	0	4	1	1	0	85	98	29.80	4500	8	YM7352
100287	301740	C	9/28/71	G07	69	OLDS	NINET	36855	455	8	0	1	0	4	1	1	0	82	118	30.22	4500	8	JOR1796
100314	301705	C	8/24/71	G07	68	OLDS	NINET	37503	455	8	0	1	0	4	1	1	0	82	91	29.85	4500	8	YM6997
100343	301101	C	12/11/70	G07	69	OLDS	NINET	42550	455	8	0	1	0	4	1	1	0	72	25	30.53	4500	8	JO7257
100343	301121	C	12/16/70	G07	69	OLDS	NINET	39402	455	8	0	1	0	4	1	1	0	74	26	30.23	4500	8	GR2923
100366	301795	C	10/15/71	G07	68	OLDS	NINET	66097	455	8	0	1	0	4	1	1	0	77	98	30.08	4500	8	JO82187
100373	301710	C	9/01/71	G07	69	OLDS	DELTA	57216	455	8	0	1	0	4	1	1	0	85	98	29.80	4500	8	DPC10
100379	301702	C	8/23/71	G07	69	OLDS	NINET	32921	455	8	0	1	0	4	1	1	0	82	92	29.70	4500	8	A5P697
100399	301741	C	9/29/71	G07	68	OLDS	DELTA	30643	455	8	0	1	0	4	1	1	0	84	121	30.20	4500	8	XP6420
100373	301802	R	10/16/71	G07	69	OLDS	DELTA	62493	455	8	0	1	0	4	1	1	0	78	102	30.04	4500	8	DPC10
100399	301752	R	9/30/71	G07	68	OLDS	DELTA	30655	455	8	0	1	0	4	1	1	0	85	125	30.34	4500	8	XP6420
100018	301127	C	12/16/70	G71	68	BUIC	LESAB	64899	350	8	0	1	0	4	1	1	0	74	26	30.32	4500	8	556986
100042	301815	C	10/22/71	G71	68	BUIC	LESAB	43607	350	8	0	1	0	4	1	1	0	72	81	30.00	4500	8	554591
100103	301237	C	1/19/71	G71	69	BUIC	LESAB	30595	350	8	0	1	0	4	1	1	0	74	28	31.08	4500	8	JO42433
100185	301726	C	9/24/71	G71	68	BUIC	LESAB	26587	350	8	0	1	0	4	1	1	0	72	80	30.35	4500	8	YM84 17
100300	301766	C	10/08/71	G71	68	BUIC	LESAB	59884	350	8	0	1	0	4	1	1	0	70	74	30.26	4500	8	JM0998
100304	301812	C	10/21/71	G71	69	BUIC	STAWA	21999	350	8	0	1	0	4	1	1	0	76	89	30.04	4500	8	JOJ1153
100327	301493	C	3/16/71	G71	69	BUIC	LESAB	19003	350	8	0	1	0	4	1	1	0	76	15	30.15	4500	8	4Y25190
100185	301733	R	9/27/71	G71	68	BUIC	LESAB	26593	350	8	0	1	0	4	1	1	0	85	133	30.14	4500	8	YM8437
100091	301105	C	12/11/70	G72	69	BUIC	RIVIE	33269	430	8	0	1	0	4	1	1	0	72	25	30.57	4500	8	CM6210
100099	301581	C	3/31/71	G72	69	BUIC	ELECT	55875	430	8	0	1	0	4	1	1	0	71	29	29.25	4500	8	M8W235
100261	301611	C	4/06/71	G72	68	BUIC	ELECT	16255	430	8	0	1	0	4	1	1	0	72	21	30.42	4500	8	X53061
100262	301274	C	1/29/71	G72	68	BUIC	ELECT	98937	430	8	0	1	0	4	1	1	0	74	24	29.43	4500	8	GT1662
100315	301117	C	12/15/70	G72	68	BUIC	4ILDC	41683	430	8	0	1	0	4	1	1	0	75	28	30.45	4500	8	SM9630
100317	301119	C	12/15/70	G72	69	BUIC	4ILDC	34390	430	8	0	1	0	4	1	1	0	75	28	30.42	4500	8	JO11455
100317	301119	H																					
100329	301103	C	12/11/70	G72	68	BUIC	ELECT	18336	430	8	0	1	0	4	1	1	0	72	25	30.39	4500	8	JO66918
100331	301071	C	12/03/70	G72	68	BUIC	RIVIE	42610	430	8	0	1	0	4	1	1	0	73	31	30.44	4500	8	JO90472
100340	301704	C	8/23/71	G72	68	BUIC	4ILDC	58229	430	8	0	1	0	4	1	1	0	85	98	29.70	4500	8	G7W397
100098	301582	R	4/01/71	G72	69	BUIC	ELECT	55995	430	8	0	1	0	4	1	1	0	72	38	29.75	4500	8	M8W235
100157	301136	C	12/18/70	G76	68	CADI	DEVIL	46267	472	8	0	1	0	4	1	2	0	74	22	30.25	5000	8	WY9433
100189	301739	C	9/28/71	G76	69	CADI	SEDAN	36284	472	8	0	1	0	4	1	2	0	82	118	30.20	5000	8	M8W478
100227	301774	C	10/12/71	G76	68	CADI	DEVIL	55128	472	8	0	1	0	4	1	2	0	70	74	30.16	5000	8	M2Y503
100340	301649	C	3/04/71	G76	68	CADI	DEVIL	53944	472	8	0	1	0	4	1	2	0	74	19	30.00	5000	8	JO58810
100349	301249	C	1/21/71	G76	69	CADI	DEVIL	29012	472	8	0	1	0	4	1	2	0	78	24	29.82	5000	8	YR3444
100397	301708	C	8/24/71	G76	68	CADI	DEVIL	59437	472	8	0	1	0	4	1	2	0	85	103	29.90	5000	8	JO60032
100434	301796	C	10/16/71	G76	69	CADI	CALAI	17279	472	8	0	1	0	4	1	2	0	71	83	30.00	5000	8	JOF7065
100411	301287	C	2/02/71	G76	68	CADI	DEVIL	52453	472	8	0	1	0	4	1	2	0	74	18	30.36	5000	8	JO88523
100227	301794	R	10/13/71	G76	68	CADI	DEVIL	55138	472	8	0	1	0	4	1	2	0	75	91	30.14	5000	8	M2Y503
100006	301655	C	4/20/71	V81	69	VOLK	STAND	25523	91	4	4	1	0	1	1	1	0	74	74	29.65	2000	4	JO58541
100095	301651	C	4/19/71	V81	69	VOLK	STAND	26953	91	4	0	0	0	1	1	1	0	72	67	29.83	2000	4	GW1342
100109	301775	C	10/12/71	V81	68	VOLK	STAND	31995	91	4	4	0	0	1	1	1	0	71	73	30.14	2000	4	YM6656
100118	301108	C	12/11/70	V81	69	VOLK	STAND	29835	91	4	4	0	0	1	1	1	0	72	25	30.55	2000	4	GW2076
100124	301244	C	1/20/71	V81	68	VOLK	STAND	40630	91	4	4	0	0	1	1	1	0	76	24	29.70	2000	4	CM4499
100148	301707	C	8/24/71	V81	68	VOLK	STAND	26780	91	4	4	0	0	1	1	1	0	92	91	29.85	2000	4	P5Y483
100164	301074	C	12/04/70	V81	69	VOLK	STAND	48429	91	4	4	0	0	1	1	1	0	70	24	30.80	2000	4	CM9086
100185	301271	C	1/28/71	V81	68	VOLK	STAND	22948	91	4	4	0	0	1	1	1	0	77	14	30.17	2000	4	JO14090
100181	301513	C	3/18/71	V81	69	VOLK	STAND	20499	91	4	4	0	0	1	1	1	0	76	21	29.13	2000	4	JO43072
100139	301781	R	10/13/71	V81	68	VOLK	STAND	32010	91	4	4	0	0	1	1	1	0	75	85	30.20	2000	4	YM6656
100209	301017	C	11/12/70	V82	69	VOLK	SQUK	24814	97	4	0	0	0	1	1	1	0	70	36	30.22	2500	4	WY40223
100209	301018	H																					

COLD START VEHICLE INFORMATION — KANSAS CITY PHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
100228	301701	C	8/23/71	VB2	68	VOLK	SQBK	31323	97	4	4	0	1	0	1	1	0	82	92	29.70	2500	4	C63146
100229	300999	C	11/06/70	VB2	69	VOLK	SQBK	27707	97	4	4	1	1	0	1	1	0	74	34	30.10	2500	4	X69007
100269	301665	C	4/22/71	VB2	68	VOLK	SQBK	56339	97	4	4	1	1	0	1	1	0	70	29	29.68	2500	4	JOV1168
100270	301776	C	10/12/71	VB2	69	VOLK	SQBK	25106	97	4	0	0	1	0	1	1	0	71	77	30.14	2500	4	P6T780
100271	301051	C	11/25/70	VB2	69	VOLK	FTBK	23417	97	4	0	0	1	0	1	1	0	74	26	30.15	2500	4	WY53651
100283	301072	C	12/03/70	VB2	68	VOLK	SQBK	43403	97	4	4	0	1	0	1	1	0	73	30	30.56	2500	4	K59248
100299	300986	C	11/05/70	VB2	68	VOLK	SQBK	27141	97	4	4	0	1	0	1	1	0	75	27	30.57	2500	4	ST1339
100301	301342	C	2/12/71	VB2	68	VOLK	SQBA	26157	97	4	0	1	1	0	1	1	0	76	26	30.20	2500	4	WY7737
100374	301652	C	4/19/71	VB2	68	VOLK	SQBK	68333	97	4	4	0	1	0	1	1	0	72	67	29.83	2500	4	JOR2296
100270	301782	R	10/13/71	VB2	69	VOLK	SQBK	25121	97	4	0	0	1	0	1	1	0	70	74	30.20	2500	4	P6T780

TABLE A-4

Houston

Phase I

HOUSTON, PNASF I — PROCESSING DATE- 03/27/72

CID NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	MP	LIC NO
200239	100301	C	4/29/70	A01	68	RAMB	AMFRI	27406	232	6	M	1	0	1	1	1	0	80	105	29.81	3000	8	PWN354
200262	100328	C	4/29/70	A01	69	AMER	RAMBL	17449	232	6	A	1	0	1	1	1	0	82	112	29.77	3000	8	NRL740
200262	100332	R	4/30/70	A01	69	AMER	STAWA	17496	232	6	A	1	0	1	1	1	0	82	112	29.77	3000	8	NRL740
200271	100340	C	5/01/70	A01	68	AMER	JAVFL	41983	232	6	M	1	0	1	1	1	0	78	105	29.80	3000	8	NRL740
200297	100376	C	5/07/70	A01	69	AMER	JAVFL	29643	232	6	M	0	0	1	1	1	0	68	76	30.03	3000	8	NTY999
200309	100388	C	5/11/70	A01	68	AMER	RAMBL	36745	232	6	M	0	0	1	1	1	0	73	80	30.23	3000	8	KKZ413
200314	100395	C	5/13/70	A01	68	AMER	JAVFL	31997	232	6	M	0	0	1	1	1	0	72	95	30.01	3000	8	PRS960
200332	100414	C	5/21/70	A01	69	AMER	JAVFL	22580	232	6	A	1	0	1	1	1	0	76	106	30.11	3000	8	RDN799
200337	100419	C	5/22/70	A01	68	AMER	JAVFL	22343	232	6	M	0	0	1	1	1	0	75	102	30.12	3000	8	PGW410
200347	100429	C	5/23/70	A01	68	AMER	RAMBL	33364	232	6	M	1	0	1	1	1	0	76	112	30.00	3000	8	RCD139
200351	100434	C	5/25/70	A01	69	AMER	AMBAS	8289	232	6	A	1	0	1	1	1	0	80	105	30.03	3500	8	PWH396
200356	100440	C	5/26/70	A01	69	AMER	JAVFL	4468	232	6	M	1	0	1	1	1	0	74	110	30.00	3000	8	NWM659
200356	100441	H																					
200359	100443	C	5/26/70	A01	68	AMER	RENFL	19207	232	6	A	1	0	1	1	1	0	81	115	30.01	3500	8	NND612
200373	100462	C	5/28/70	A01	68	AMER	AMBAS	21737	232	6	A	1	0	1	1	1	0	74	110	29.90	3500	8	43W1074
200383	100490	C	6/01/70	A01	69	AMER	JAVFL	13695	232	6	M	1	0	1	1	1	0	75	75	29.98	3000	8	PSD257
200393	100491	H																					
200395	100507	C	6/04/70	A01	68	AMER	STAWA	27397	232	6	A	1	0	1	1	1	0	82	62	29.99	3000	8	PNR215
200003	100004	C	3/26/70	C11	69	PLYM	FURY	3955	225	6	A	1	0	1	1	1	0	68	46	30.08	4000	8	RDR628
200056	100074	C	4/03/70	C11	68	DODG	DART	19766	225	6	A	1	0	1	1	1	0	73	35	30.09	3000	8	PHJ324
200122	100139	C	4/11/70	C11	68	PLYM	FURY	24970	225	6	M	1	0	1	1	1	0	68	86	29.85	4000	8	PTF143
200123	100150	C	4/11/70	C11	69	PLYM	VALIA	14064	225	6	M	1	0	1	1	1	0	68	86	29.86	3000	8	PGZ93
200181	100232	C	4/20/70	C11	68	PLYM	VALIA	11197	225	6	A	1	0	1	1	1	0	69	72	29.78	3000	8	PJY472
200189	100241	C	4/20/70	C11	69	PLYM	VALIA	18784	225	6	M	1	0	1	1	1	0	74	71	29.70	3000	9	NHC928
200208	100265	C	4/22/70	C11	69	DODG	DART	25175	225	6	A	1	0	1	1	1	0	80	104	29.93	3000	8	RCN457
200215	100273	C	4/23/70	C11	68	PLYM	VALIA	55282	225	6	M	1	0	1	1	1	0	77	110	30.06	3000	8	RDN274
200234	100295	C	4/25/70	C11	68	DODG	DART	13202	225	6	A	1	0	1	1	1	0	76	106	29.95	3000	8	PGH856
200238	100299	C	4/25/70	C11	69	DODG	DART	26207	225	6	M	0	0	1	1	1	0	80	105	29.85	3000	8	PXN519
200238	100300	H																					
200259	100329	C	4/29/70	C11	68	DODG	DART	27588	225	6	A	1	0	1	1	1	0	77	100	29.88	3000	8	PHX539
200279	100351	C	5/02/70	C11	68	PLYM	SATFL	34786	225	8	M	0	0	1	1	1	0	70	75	30.25	3500	8	12G157
200294	100367	C	5/04/70	C11	68	DODG	DART	49865	225	6	A	1	0	1	1	1	0	69	86	30.41	3000	8	NXX578
200295	100371	C	5/06/70	C11	68	DODG	DART	30796	225	6	M	0	0	1	1	1	0	73	70	30.37	3000	8	PZK298
200295	100375	R	5/07/70	C11	68	DODG	DART	30796	225	6	M	0	0	1	1	1	0	72	86	30.25	3000	8	PZK298
200310	100389	C	5/11/70	C11	69	PLYM	VALIA	13791	225	6	A	1	0	1	1	1	0	73	95	30.01	3500	8	RJD587
200317	100398	C	5/14/70	C11	68	DODG	DART	12810	225	6	A	1	0	1	1	1	0	78	120	30.07	3000	8	PTB927
200321	100402	C	5/16/70	C11	69	DODG	DART	19379	225	6	A	1	0	1	1	1	0	68	78	30.14	3000	8	RFD156
200013	100017	C	3/27/70	C12	69	DODG	CHAR	13544	318	8	A	1	0	2	1	1	0	68	46	29.99	3500	8	E83872
200019	100219	C	3/28/70	C12	68	DODG	CORO	38027	318	8	A	1	0	2	1	1	0	68	64	29.82	3500	8	NFH838
200019	100553	C	6/12/70	C12	68	DODG	POLAR	65586	318	8	A	1	0	2	1	1	0	85	116	29.88	4000	8	NXL366
200022	100468	C	5/29/70	C12	68	DODG	CHARG	54586	318	8	A	1	0	2	1	1	0	77	110	30.03	3500	8	RHJ282
200025	100030	C	3/30/70	C12	69	DODG	CHARG	6949	318	8	A	1	0	2	1	1	0	68	54	29.75	3500	8	PJP761
200025	100031	H																					
200038	100498	C	6/03/70	C12	69	PLYM	SUBUR	21236	318	8	A	1	0	2	1	1	0	78	60	29.92	4500	8	NMR638
200043	100501	C	6/04/70	C12	68	PLYM	FURY	58750	318	8	A	1	0	2	1	1	0	74	70	29.99	4000	8	PVR787
200043	100502	H																					
200055	100072	C	4/03/70	C12	69	PLYM	FURY	15464	318	8	A	1	0	2	1	1	0	73	35	30.09	4000	8	PGY104
200055	100073	H																					
200073	100494	C	6/03/70	C12	69	PLYM	FURY	19332	318	8	A	1	0	2	1	1	0	70	62	29.96	4000	8	RJM708
200076	100525	C	6/08/70	C12	69	DODG	CHARG	31778	318	8	A	1	0	2	1	1	0	80	109	30.20	3500	8	PHG827
200095	100124	C	4/08/70	C12	69	PLYM	FURY	6054	318	8	A	1	0	2	1	1	0	71	70	30.19	4000	8	PFK477
200095	100125	H																					
200099	100130	C	4/08/70	C12	69	PLYM	FURY	4536	318	8	A	1	0	2	1	1	0	74	70	30.12	4000	8	PRF547
200108	100141	C	4/09/70	C12	68	PLYM	FURY	14793	318	8	A	1	0	2	1	1	0	73	97	30.09	4000	8	PGZ750
200108	100142	H																					
200110	100145	C	4/09/70	C12	68	PLYM	FURY	40212	318	8	A	1	0	2	1	1	0	73	97	30.02	4000	8	RKL818
200111	100146	C	4/09/70	C12	69	PLYM	STAWA	14829	318	8	A	1	0	2	1	1	0	71	98	30.02	4000	8	NXC370
200169	100212	C	4/16/70	C12	69	DODG	CORON	20961	318	8	A	1	0	2	1	1	0	75	106	29.92	3500	8	PGC895
200169	100217	R	4/17/70	C12	69	DODG	CORON	20961	318	8	A	1	0	2	1	1	0	70	102	30.01	3500	8	PGC895
200423	100539	C	6/11/70	C12	69	DODG	CHARG	23512	318	8	M	0	0	2	1	1	0	78	110	29.74	3500	8	NRM797
200423	100540	H																					
200007	100008	C	3/27/70	C13	68	PLYM	FURY	26997	383	8	A	1	0	2	1	1	0	68	46	30.07	4000	8	NWN539
200012	100016	C	3/27/70	C13	68	CHRY	NEW	20181	383	8	A	1	0	2	1	1	0	68	46	29.99	4500	8	PYC636
200032	100477	C	6/01/70	C13	69	PLYM	FURY	49982	383	8	A	1	0	2	1	1	0	74	113	29.92	4500	8	PVR340
200033	100040	C	3/31/70	C13	69	CHRY	NEWPO	11717	383	8	A	1	0	2	1	1	0	72	46	29.80	4500	8	HYP64
200042	100467	C	5/29/70	C13	69	CHRY	NEWPO	14713	383	8	A	1	0	2	1	1	0	77	110	30.01	4500	8	NTY277
200109	100143	C	4/09/70	C13	69	PLYM	STAWA	48634	383	8	A	1	0	2	1	1	0	73	97	30.05	4000	8	NPF41
200109	100144	H																					
200128	100165	C	4/11/70	C13	68	PLYM	FURY	28195	383	8	A	1	0	2	1	1	0	70	86	29.82	4000	8	33J507
200130	100167	C	4/13/70	C13	68	PLYM	FURY	32416	383	8	A	1	0	2	1	1	0	73	90	29.98	4000	8	PLV725
200138	100175	C	4/13/70	C13	68	PLYM	FURY	55613	383	8	A	1	0	2	1	1	0	82	90	29.99	4000	8	PFW339
200147	100194	C	4/14/70	C13	69	PLYM	SATFL	24588	383	8	A	1	0	2	1	1	0	70	44	30.01	4000	8	NPS270
200159	100199	C	4/15/70	C13	68	CHRY	NEWPO	48828	383	8	A	1	0	2	1	1	0	74	112	29.90	4500	8	NPT693
200162	100203	C	4/16/70	C13	68	PLYM	FURY	20635	383	8	A	1	0	2	1	1	0	73	106	29.92	4000	8	PCT827
200196	100246	C	4/21/70	C13	69	PLYM	FURY	16425	383	8	A	1	0	2	1	1	0	72	82	29.92	4000	8	PHR27
200201	100254	C	4/21/70	C13	69	CHRY	NEWPO	46464	383	8	A	1	0	2	1	1	0	74	79	29.98	4500	8	NHK100
200204	100257	C	4/22/70	C13	69	CHRY	NEWPO	23647	383	8	A	1	0	2	1	1	0	77	104	29.96	4500	8	NPV33
200204	100258	H																					
200214	100274	C	4/23/70	C13	68	DODG	CHARG	14998	383	8	A	1	0	2	1	1	0	78	110	30.04	3500	8	PRK270
200217	100278	C	4/23/70	C13	68	PLYM	STAWA	91495	383	8	A	1	0	2	1	1	0	77	110	30.09	4500	8	NVN644

HOUSTON, PHASE I — PROCESSING DATE- 03/27/72

COLD START VEHICLE INFORMATION CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200217	100279	R	4/24/70	C13	68	PLYM	STAWA	51485	383	8	A	1	0	2	1	1	0	79	113	30.09	4500	8	NVN644
200508	101409	C	4/14/71	C13	69	PLYM	FURY	30700	383	8	A	0	1	0	2	1	1	0	78	89	30.60	4000	8	RWR350
200113	100149	C	4/10/70	C14	69	CHRY	IMPER	17539	440	8	A	1	0	4	1	1	0	70	88	30.00	5500	8	PHF305
200124	100161	C	4/11/70	C14	68	CHRY	IMPER	5105	440	8	A	1	0	4	1	1	0	68	86	29.85	5500	8	RDK223
200127	100164	C	4/11/70	C14	69	CHRY	300	9091	440	8	A	1	0	4	1	1	0	70	86	29.84	4500	8	RFT646
200149	100188	C	4/14/70	C14	68	CHRY	300	57299	440	8	A	1	0	4	1	1	0	70	44	30.00	4500	8	PDP151
200157	100198	C	4/15/70	C14	69	CHRY	NEWYO	18313	440	8	A	1	0	4	1	1	0	74	112	29.91	4500	8	NYH499
200180	100231	C	4/20/70	C14	68	CHRY	NEWYO	29417	440	8	A	1	0	4	1	1	0	69	72	29.77	4500	8	NVD652
200226	100293	C	4/24/70	C14	69	DODG	CHARG	23086	440	8	A	1	0	4	1	1	0	79	113	30.09	4000	8	RGJ424
200246	100308	C	4/27/70	C14	68	CHRY	300	20199	440	8	A	1	0	4	1	1	0	77	110	29.79	4500	8	PPN799
200264	100331	C	4/30/70	C14	69	PLYM	GTX	23219	440	8	A	1	0	4	1	1	0	78	105	29.77	4000	8	NVL344
200264	100334	C	4/30/70	C14	68	CHRY	300	41417	440	8	A	1	0	4	1	1	0	78	105	29.82	4500	8	NYF323
200285	100358	C	5/04/70	C14	69	DODG	CHARG	40951	440	8	A	1	0	4	1	1	0	70	86	30.44	4000	8	PPD894
200298	100377	C	5/07/70	C14	68	CHRY	NEWYO	29604	440	8	A	1	0	4	1	1	0	74	54	30.13	4500	8	PNG51
200307	100386	C	5/11/70	C14	68	DODG	CHARG	42459	440	8	A	1	0	4	1	1	0	73	89	30.01	4000	8	NFY197
200316	100397	C	5/14/70	C14	69	CHRY	300	3180	440	8	A	1	0	4	1	1	0	78	120	30.09	4500	8	PGH788
200350	100433	C	5/25/70	C14	68	CHRY	300	26730	440	8	A	1	0	4	1	1	0	75	95	30.03	4500	8	NNX894
200350	100438	R	5/26/70	C14	68	CHRY	300	26735	440	8	A	1	0	4	1	1	0	74	110	29.99	4500	8	NNX894
200028	100034	C	3/31/70	F31	68	FORD	FALCO	26803	200	6	A	1	0	1	1	1	0	68	76	29.90	3000	8	PJL223
200075	100100	C	4/06/70	F31	69	FORD	MUSTA	39586	200	6	A	1	0	1	1	1	0	72	56	30.17	3000	8	NVJ640
200193	100245	C	4/21/70	F31	68	FORD	MUSTA	16991	200	6	A	1	0	1	1	1	0	72	82	29.91	3000	8	NVC180
200235	100296	C	4/25/70	F31	68	FORD	FALCO	17647	200	6	A	1	0	1	1	1	0	77	106	29.95	3000	8	NZK605
200243	100369	C	5/06/70	F31	69	FORD	MUSTA	11937	200	6	A	1	0	1	1	1	0	71	75	30.38	3500	8	PWN972
200293	100374	R	5/07/70	F31	69	FORD	MUSTA	11943	200	6	A	1	0	1	1	1	0	72	86	30.24	3500	8	PWN972
200346	100428	C	5/23/70	F31	68	FORD	MUSTA	30596	200	6	A	1	0	1	1	1	0	76	112	30.02	3000	8	NFY465
200357	100442	C	5/26/70	F31	69	FORD	MUSTA	28426	200	6	M	0	0	1	1	1	0	74	110	30.00	3500	8	PPX727
200359	100444	C	5/26/70	F31	68	FORD	FALCO	64476	200	6	A	0	0	1	1	1	0	81	115	30.00	3500	8	RWM877
200370	100457	C	5/29/70	F31	68	FORD	MUSTA	31558	200	6	A	1	0	1	1	1	0	77	110	29.93	3000	8	RDF900
200370	100458	M																					
200382	100479	C	6/01/70	F31	68	FORD	FAIRL	21129	200	6	A	1	0	1	1	1	0	74	113	29.88	3500	8	PML386
200385	100485	C	6/02/70	F31	68	FORD	FALCO	87801	200	6	A	1	0	1	1	1	0	73	106	30.06	3000	8	PKG826
200386	100488	C	6/02/70	F31	69	FORD	FALCO	15400	200	6	M	0	0	1	1	1	0	80	71	30.05	3000	8	NXN83
200403	100536	C	6/10/70	F31	69	FORD	STAWA	32385	200	6	A	0	0	1	1	1	0	77	103	29.93	3500	8	NZB846
200411	100557	C	6/13/70	F31	68	FORD	FAIRL	28913	200	6	A	0	0	1	1	1	0	82	131	30.14	3500	8	RRI745
200412	100559	C	6/15/70	F31	69	FORD	FALCO	10548	200	6	A	1	0	1	1	1	0	80	116	30.07	3000	8	PRG648
200131	100169	C	4/13/70	F32	70	FORD	MAVER	28998	201	6	M	1	0	1	1	1	0	73	90	29.99	3000	8	NRN293
200160	100201	C	4/15/70	F32	70	FORD	MAVER	15749	201	6	M	1	0	1	1	1	0	74	112	29.89	3000	8	NSD610
200263	100330	C	4/30/70	F32	70	FORD	MAVER	6002	201	6	A	1	0	1	1	1	0	70	105	29.80	3000	8	NZR986
200269	100337	C	4/30/70	F32	70	FORD	MAVER	7770	201	6	A	1	0	1	1	1	0	82	101	29.80	3000	8	RDP123
200276	100346	C	5/01/70	F32	70	FORD	MAVER	16285	201	6	M	1	0	1	1	1	0	69	78	30.15	3000	8	NRT267
200290	100364	C	5/05/70	F32	70	FORD	MAVER	12830	201	6	M	0	0	1	1	1	0	70	29	30.42	3000	8	NM7817
200322	100403	C	5/18/70	F32	70	FORD	MAVER	3574	201	6	M	1	0	1	1	1	0	72	77	30.15	3000	8	RHR39
200323	100404	C	5/18/70	F32	70	FORD	MAVER	7487	201	6	A	1	0	1	1	1	0	72	77	30.14	3000	8	NWW503
200324	100405	C	5/18/70	F32	70	FORD	MAVER	25757	201	6	M	1	0	1	1	1	0	72	77	30.14	3000	8	RGZ145
200327	100408	C	5/21/70	F32	70	FORD	MAVER	3189	201	6	A	0	0	1	1	1	0	76	101	30.14	3000	8	NVT705
200327	100409	M																					
200335	100417	C	5/22/70	F32	70	FORD	MAVER	11603	201	6	M	0	0	1	1	1	0	74	102	30.15	3000	8	RSL996
200336	100418	C	5/22/70	F32	70	FORD	MAVER	5039	201	6	A	1	0	1	1	1	0	75	102	30.15	3000	8	PDP21
200339	100421	C	5/23/70	F32	70	FORD	MAVER	13737	201	6	A	1	0	1	1	1	0	75	111	30.06	3000	8	PJJ708
200375	100464	C	5/28/70	F32	70	FORD	MAVER	10282	201	6	M	1	0	1	1	1	0	74	110	29.86	3000	8	PDF698
200388	100483	C	6/03/70	F32	70	FORD	MAVER	4396	201	6	A	1	0	1	1	1	0	69	62	29.98	3000	8	NNP764
200388	100499	R	6/04/70	F32	70	FORD	MAVER	4402	201	6	A	1	0	1	1	1	0	73	70	29.98	3000	8	NNP764
200502	101071	C	2/09/71	F32	70	FORD	MAVER	11174	200	6	3	1	0	1	1	1	0	71	66	30.95	2750	4	MCG332
200504	101218	C	3/04/71	F32	70	FORD	MAVER	12117	200	6	3	0	0	1	1	1	0	70	63	30.80	2750	8	RHV404
200505	101255	C	3/10/71	F32	70	FORD	MAVER	7693	200	6	0	1	0	1	1	1	0	71	71	30.60	2750	8	NLW401
200506	101263	C	3/11/71	F32	70	FORD	MAVER	13237	200	6	0	0	0	1	1	1	0	68	63	30.40	2750	8	PZX998
200001	100552	C	6/12/70	F33	68	FORD	GALAX	40694	302	8	A	1	0	2	1	1	0	85	116	29.87	4000	8	PDP2A
200002	100003	C	3/25/70	F33	68	FORD	GALAX	36145	302	8	A	1	0	2	1	1	0	76	92	29.60	4000	8	PZK680
200011	100014	C	3/27/70	F33	68	FORD	GALX	35089	302	8	A	1	0	2	1	1	0	68	46	30.02	4000	8	NWD960
200011	100015	M																					
200020	100510	C	6/05/70	F33	69	FORD	FALCO	11019	302	8	A	1	0	2	1	1	0	72	67	31.13	3500	8	PDD938
200024	100565	C	6/17/70	F33	69	FORD	TORIN	21156	302	8	A	1	0	2	1	1	0	80	129	30.10	3500	8	NWY955
200029	100491	C	6/02/70	F33	69	FORD	RANCH	18800	302	8	M	0	0	2	1	1	0	80	71	30.04	4500	8	PWD227
200104	100137	C	4/09/70	F33	69	FORD	MUSTA	23746	302	8	A	1	0	2	1	1	0	72	96	30.14	3500	8	PHD842
200107	100140	C	4/09/70	F33	69	FORD	LTD	32350	302	8	A	1	0	2	1	1	0	73	96	30.12	4500	8	PPF534
200114	100149	C	4/10/70	F33	69	FORD	LTD	24446	302	8	A	1	0	2	1	1	0	70	88	30.00	4500	8	PKC451
200114	100150	M																					
200121	100159	C	4/11/70	F33	68	FORD	GALAX	42541	302	8	A	1	0	2	1	1	0	68	86	29.86	4000	8	PHW740
200134	100171	C	4/13/70	F33	68	FORD	STAWA	9084	302	8	A	1	0	2	1	1	0	80	90	29.99	4000	8	NSJ680
200202	100255	C	4/22/70	F33	69	FORD	STAWA	21657	302	8	A	1	0	2	1	1	0	77	104	29.95	4500	8	PTD578
200205	100259	C	4/22/70	F33	69	FORD	TORIN	17634	302	8	A	1	0	2	1	1	0	77	106	29.98	3500	8	NSS740
200205	100260	M																					
200211	100265	C	4/22/70	F33	68	MERC	COUGA	30355	302	8	A	1	0	2	1	1	0	80	104	29.91	3500	8	PMM553
200224	100285	C	4/24/70	F33	69	FORD	FAIRL	13346	302	8	A	1	0	2	1	1	0	82	113	30.06	3500	8	PCR271
200224	100286	R	4/25/70	F33	69	FORD	FAIRL	13352	302	8	A	1	0	2	1	1	0	76	106	29.95	3500	8	PCR271
200422	100543	C	6/11/70	F33	69	FORD	GALAX	22193	302	8	A	1	0	2	1	1	0	81	130	29.75	4000	8	10-1132
200422	100544	M																					
200507	101370	C	4/01/71	F33	69	FORD	FAIRL	30931	302	8	A	0	1	0	2	1	1	0	70	83	30.35	3500	8	PRS376
200057	100075	C	4/03/70	F34	69	FORD	FAIRL	17836	351	8	A	1	0	2	1	1	0	74	36	30.06	3500	8	NXZ797
200071	100092	C	4/06/70	F34	69	FORD	GALAX	10998	351	8	A	1	0	2	1	1	0	68	98	30.16	4500	8	PJS356
200071	100093	M																					

HOUSTON, PHASE I — PROCESSING DATE- 03/27/72

COLD START VEHICLE INFORMATION																									
CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200192	100233	C	4/20/70	F34	69	FORD	MUSTA	19727	351	8	A	1	0	2	1	1	0	70	77	29.78	3500	8	PFX655
200213	100270	C	4/23/70	F34	69	FORD	GALAX	9874	351	8	A	1	0	2	1	1	0	77	110	30.05	4500	8	PZY205
200213	100271	H																					
200231	100292	C	4/25/70	F34	69	FORD	MUSTA	8731	351	8	A	1	0	2	1	1	0	76	106	29.95	3500	8	231845F
200236	100297	C	4/25/70	F34	69	FORD	STAWA	27916	351	8	A	1	0	2	1	1	0	77	106	29.94	4000	8	NWD9R9
200249	100311	C	4/27/70	F34	69	FORD	LTD	22230	351	8	A	1	0	2	1	1	0	77	110	29.78	4000	8	PRF189
200260	100326	C	4/29/70	F34	69	FORD	TORIN	15244	351	8	A	1	0	2	1	1	0	77	100	29.89	3500	8	PSN62
200286	100359	C	5/04/70	F34	69	FORD	MUSTA	49925	351	8	A	1	0	2	1	1	0	73	80	30.39	3500	8	PLT160
200286	100362	R	5/05/70	F34	69	FORD	MUST	49931	351	8	A	1	0	2	1	1	0	68	40	30.40	3500	8	PLT160
200287	100360	C	5/04/70	F34	69	FORD	LTD	10653	351	8	A	1	0	2	1	1	0	73	80	30.36	4500	8	NWL45
200291	100365	C	5/06/70	F34	69	FORD	LTD	20935	351	8	A	1	0	2	1	1	0	70	75	30.37	4500	8	RBK668
200302	100391	C	5/09/70	F34	69	MERC	COUGA	14722	351	8	A	1	0	2	1	1	0	72	91	30.08	4000	8	PDN109
200308	100387	C	5/11/70	F34	69	FORD	MUSTA	13753	351	8	A	1	0	2	1	1	0	73	95	30.01	3500	8	RCK149
200311	100391	C	5/11/70	F34	69	FORD	MUSTA	11770	351	8	A	1	0	2	1	1	0	74	89	29.99	3500	8	PLY509
200311	100392	R	5/12/70	F34	69	FORD	MUSTA	11777	351	8	A	1	0	2	1	1	0	78	109	30.11	3500	8	PLY509
200326	100407	C	5/19/70	F34	69	FORD	FAIRL	12414	351	8	A	1	0	2	1	1	0	76	90	30.17	3500	8	PYJ83
200061	100081	C	4/06/70	F35	69	FORD	GALAX	24719	390	8	A	1	0	2	1	1	0	70	45	30.06	4000	8	PSY217
200087	100114	C	4/07/70	F35	69	FORD	GALAX	9505	390	8	A	1	0	2	1	1	0	71	60	30.20	4500	8	PYT430
200098	100129	C	4/08/70	F35	69	FORD	LTD	25423	390	8	A	1	0	2	1	1	0	73	70	30.14	4000	8	NMV908
200100	100131	C	4/08/70	F35	69	FORD	GALAX	35203	390	8	A	1	0	2	1	1	0	74	70	30.12	4500	8	RMY994
200100	100132	H																					
200139	100176	C	4/13/70	F35	68	FORD	STAWA	29948	390	8	A	1	0	2	1	1	0	82	100	29.99	4500	8	RKH425
200153	100193	C	4/15/70	F35	69	FORD	COUNT	14178	390	8	A	1	0	2	1	1	0	73	112	29.89	4500	8	PGD810
200153	100194	H																					
200170	100213	C	4/16/70	F35	69	FORD	COUNT	35891	390	8	A	1	0	2	1	1	0	75	107	29.92	4500	8	PVM552
200172	100219	C	4/17/70	F35	69	MERC	STAWA	41813	390	8	A	1	0	2	1	1	0	70	102	30.01	4500	8	NPS763
200175	100221	C	4/17/70	F35	68	FORD	COUNT	26597	390	8	A	1	0	2	1	1	0	70	102	30.04	4500	8	PGM122
200190	100242	C	4/21/70	F35	69	FORD	XL	22050	390	8	A	1	0	2	1	1	0	72	82	29.99	4500	8	PPG621
200191	100243	C	4/21/70	F35	68	FORD	LTD	43466	390	8	A	1	0	2	1	1	0	72	82	29.90	4000	8	PTW155
200195	100247	C	4/21/70	F35	68	FORD	TORIN	29496	390	8	A	1	0	2	1	1	0	72	82	29.91	3500	8	PWV392
200206	100261	C	4/22/70	F35	69	FORD	LTD	29746	390	8	A	1	0	2	1	1	0	77	104	29.99	4500	8	NDW112
200206	100262	H																					
200209	100266	C	4/22/70	F35	69	FORD	CUSTO	7959	390	8	A	1	0	2	1	1	0	80	104	29.93	4500	8	RVZ122
200210	100267	C	4/22/70	F35	69	MERC	STAWA	14220	390	8	A	1	0	2	1	1	0	80	104	29.92	4500	8	RJR752
200170	100222	R	4/17/70	F35	68	FORD	COUNT	35997	390	8	A	1	0	2	1	1	0	74	103	30.02	4500	8	PVM552
200023	100027	C	3/30/70	F36	69	FORD	THUND	63223	429	8	A	1	0	4	1	1	0	68	54	29.72	5000	8	NWN617
200060	100079	C	4/04/70	F36	69	MERC	MARQU	16896	429	8	A	1	0	4	1	1	0	69	44	30.06	4500	8	PCR892
200060	100080	H																					
200069	100089	C	4/04/70	F36	69	FORD	THUND	10329	429	8	A	1	0	4	1	1	0	75	65	29.97	5000	8	NTY710
200070	100537	C	6/10/70	F36	69	FORD	STAWA	11942	429	8	A	1	0	4	1	1	0	85	110	29.77	4500	8	PZD504
200096	100126	C	4/08/70	F36	68	FORD	THUND	21491	429	8	A	1	0	4	1	1	0	73	70	30.17	5000	8	PBG403
200101	100133	C	4/09/70	F36	68	FORD	THUND	35217	429	8	A	1	0	4	1	1	0	72	96	30.13	5000	8	PNW914
200101	100134	H																					
200203	100256	C	4/22/70	F36	68	FORD	FIRER	33160	429	8	A	1	0	4	1	1	0	77	104	29.95	5000	8	HANKK
200254	100319	C	4/28/70	F36	69	FORD	THUND	19466	429	8	A	1	0	4	1	1	0	79	102	29.81	5000	8	PSW838
200315	100396	C	5/13/70	F36	69	FORD	LTD	32922	429	8	A	1	0	4	1	1	0	77	106	30.10	4500	8	PNW800
200348	100430	C	5/25/70	F36	68	FORD	THUND	13043	429	8	A	1	0	4	1	1	0	73	95	30.00	5000	8	PVV119
200348	100431	H																					
200364	100450	C	5/27/70	F36	68	FORD	THUND	15333	429	8	A	1	0	4	1	1	0	76	115	29.92	5000	8	230059A
200394	100506	C	6/04/70	F36	68	FORD	THUND	40113	429	8	A	1	0	4	1	1	0	78	60	29.98	5000	8	NRN377
200396	100516	C	6/05/70	F36	69	FORD	THUND	6827	429	8	A	1	0	4	1	1	0	76	65	30.16	5000	8	PATNIK
200407	100547	C	6/11/70	F36	68	FORD	THUND	15061	429	8	A	1	0	4	1	1	0	82	130	29.72	5000	8	PDP317
200414	100560	C	6/15/70	F36	68	FORD	THUND	24688	429	8	A	1	0	4	1	1	0	86	92	29.93	5000	8	NTD145
200070	100539	R	6/11/70	F36	69	FORD	STAWA	11969	429	8	A	1	0	4	1	1	0	78	110	29.73	4500	8	PZD504
200085	100112	C	4/07/70	G51	68	CHEV	CHEVE	17521	230	6	A	0	0	1	1	1	0	71	60	30.20	3500	8	PTA434
200268	100338	C	4/30/70	G51	68	CHEV	CHEVE	24104	230	6	A	0	0	1	1	1	0	80	103	29.82	3500	8	NXP168
200282	100394	C	5/02/70	G51	69	CHEV	CAMAR	13693	230	6	A	1	0	1	1	1	0	70	75	30.25	3500	8	PSP89
200328	100410	C	5/21/70	G51	68	CHEV	CAMAR	47552	230	6	A	0	0	1	1	1	0	76	101	30.14	3500	8	KWV597
200329	100411	C	5/21/70	G51	69	CHEV	CAMAR	31529	230	6	A	0	0	1	1	1	0	76	101	30.14	3500	8	NTR137
200372	100461	C	5/28/70	G51	69	CHEV	NOVA	20082	230	6	A	0	0	1	1	1	0	74	110	29.99	3500	8	NSK629
200374	100463	C	5/29/70	G51	68	CHEV	CHEVE	28820	230	6	A	1	0	1	1	1	0	74	110	29.88	3500	8	RSJ303
200380	100472	C	5/29/70	G51	68	CHEV	NOVA	45459	230	6	A	1	0	1	1	1	0	78	111	30.04	3500	8	RFY380
200392	100504	C	6/04/70	G51	69	CHEV	CHEVE	17389	230	6	A	1	0	1	1	1	0	77	62	30.00	3500	8	RJR319
200398	100521	C	6/06/70	G51	68	CHEV	NOVA	24904	230	6	A	0	0	1	1	1	0	78	77	30.11	3500	8	RCG39
200399	100526	C	6/08/70	G51	68	CHEV	CHEVE	31636	230	6	A	0	0	1	1	1	0	80	109	30.20	3500	8	PLV992
200400	100528	C	6/08/70	G51	69	CHEV	NOVA	15946	230	6	A	1	0	1	1	1	0	86	96	30.19	3500	8	PFR835
200415	100561	C	6/16/70	G51	69	CHEV	NOVA	32469	230	6	A	0	0	1	1	1	0	76	113	29.92	3500	8	NTN193
200416	100562	C	6/16/70	G51	69	CHEV	NOVA	35046	230	6	A	0	0	1	1	1	0	76	113	29.94	3500	8	NTN196
200418	100564	C	6/17/70	G51	69	CHEV	CHEVE	8110	230	6	A	1	0	1	1	1	0	80	129	30.08	3500	8	PHG333
200398	100527	R	6/08/70	G51	68	CHEV	NOVA	26913	230	6	A	0	0	1	1	1	0	80	109	30.19	3500	8	RCG39
200072	100094	C	4/06/70	G52	68	CHEV	NOVA	17113	250	6	A	0	0	1	1	1	0	68	56	30.18	3500	8	NXP384
200072	100095	H																					
200218	100274	C	4/23/70	G52	69	CHEV	CHEVE	22136	250	6	A	1	0	1	1	1	0	80	110	30.05	3500	8	NVJ413
200221	100280	C	4/24/70	G52	69	CHEV	NOVA	14944	250	6	A	1	0	1	1	1	0	79	113	30.09	3500	8	PRT895
200269	100305	C	4/27/70	G52	69	CHEV	NOVA	13280	250	6	A	1	0	1	1	1	0	77	110	29.79	3500	8	PZG997
200270	100338	C	5/01/70	G52	68	CHEV	CAMAR	35087	250	6	A	1	0	1	1	1	0	68	76	30.12	3500	8	PTL612
200270	100339	H																					
200280	100352	C	5/02/70	G52	68	CHEV	NOVA	30000	250	6	A	1	0	1	1	1	0	70	75	30.25	3500	8	PHS891
200282	100367	C	5/06/70	G52	69	CHEV	CHEVE	24698	250	6	A	1	0	1	1	1	0	70	75	30.18	3500	8	NF=212
200232	100368	H																					

COLD START VEHICLE INFORMATION — HOUSTON PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	FXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200294	100370	C	5/06/70	G52	68	CHEV	NOVA	24886	250	6	A	1	0	1	1	1	0	72	72	30.38	3500	8	6545R81
200306	100385	C	5/09/70	G52	68	CHEV	NOVA	34295	250	6	A	1	0	1	1	1	0	72	96	29.92	3500	8	NJY228
200320	100401	C	5/15/70	G52	69	CHEV	NOVA	14784	250	6	A	1	0	1	1	1	0	77	122	30.07	3500	8	PNY579
200334	100416	C	5/21/70	G52	69	CHEV	CHEVE	35950	250	6	A	0	0	1	1	1	C	76	112	30.15	3500	8	RFC396
200338	100420	C	5/22/70	G52	69	CHEV	NOVA	22741	250	6	A	1	0	1	1	1	0	76	104	30.17	3500	8	PSH930
200353	100436	C	5/25/70	G52	69	CHEV	CHEVE	15391	250	6	A	1	0	1	1	1	0	80	105	30.02	3500	8	NVG539
200362	100447	C	5/26/70	G52	69	CHEV	CHEVE	23369	250	6	A	1	0	1	1	1	0	86	111	29.96	3500	8	PGD19
200362	100448	H																					
200369	100455	C	5/27/70	G52	69	CHEV	IMPAL	16841	250	6	A	1	0	1	1	1	0	84	126	29.90	4000	8	NPZ762
200391	100503	C	6/04/70	G52	68	CHEV	NOVA	21100	250	6	A	1	0	1	1	1	0	77	62	30.00	3500	8	PHW466
200369	100456	R	5/28/70	G52	69	CHEV	IMPAL	16847	250	6	A	1	0	1	1	1	0	77	110	29.93	4000	8	NPZ762
200010	100012	C	3/27/70	G53	68	CHEV	MALI	21734	307	8	A	1	0	2	1	1	0	68	46	30.11	3500	8	PRM961
200010	100013	H																					
200026	100032	C	3/30/70	G53	69	CHEV	CHEV	20007	307	8	A	0	0	2	1	1	0	68	54	29.72	3500	8	NSR348
200030	100036	C	3/31/70	G53	68	CHEV	IMPA	46556	307	8	A	1	0	2	1	1	0	68	76	28.98	4000	8	MLF334
200030	100037	H																					
200035	100044	C	4/01/70	G53	69	CHEV	CHEV	8026	307	8	A	1	0	2	1	1	0	71	84	29.58	3500	8	RC9487
200040	100049	C	4/02/70	G53	69	CHEV	CHEVE	18658	307	8	A	1	0	2	1	1	0	68	58	30.13	3500	8	NBJ740
200040	100050	H																					
200051	100066	C	4/03/70	G53	68	CHEV	CHEVE	25875	307	8	A	1	0	2	1	1	0	68	34	30.15	3500	8	NSN819
200051	100067	H																					
200052	100514	C	6/05/70	G53	68	CHEV	STAWA	20858	307	8	A	1	0	2	1	1	0	76	65	30.15	4500	8	PXL732
200052	100515	H																					
200079	100473	C	5/29/70	G53	68	CHEV	MALIB	45930	307	8	A	1	0	2	1	1	0	78	112	30.02	4000	8	PTN608
200086	100486	C	6/02/70	G53	69	CHEV	CHEVE	12667	307	8	A	1	0	2	1	1	0	79	73	30.06	3500	8	NVC989
200106	100139	C	4/09/70	G53	69	CHEV	NOVA	7145	307	8	A	1	0	2	1	1	0	72	96	30.12	3500	8	PFS341
200112	100147	C	4/10/70	G53	68	CHEV	CHEVE	23565	307	8	A	1	0	2	1	1	0	70	88	30.00	3500	8	PVH877
200119	100156	C	4/11/70	G53	69	CHEV	MALIB	21081	307	8	A	1	0	2	1	1	0	68	86	29.86	3500	8	NMP716
200126	100163	C	4/11/70	G53	69	CHEV	MALIB	16851	307	8	A	1	0	2	1	1	0	70	86	29.86	3500	8	PVN926
200136	100173	C	4/13/70	G53	68	CHEV	NOVA	16226	307	8	A	1	0	2	1	1	0	80	90	29.99	3500	8	NPZ142
200141	100179	C	4/13/70	G53	69	CHEV	MALIB	9203	307	8	A	1	0	2	1	1	0	82	90	29.99	3500	8	NPZ875
200148	100187	C	4/14/70	G53	69	CHEV	NOVA	11934	307	8	A	1	0	2	1	1	0	70	44	30.01	3500	8	PGF146
200156	100197	C	4/15/70	G53	68	CHEV	NOVA	31316	307	8	A	0	0	2	1	1	0	74	112	29.85	3500	8	NW5819
200171	100214	C	4/16/70	G53	68	CHEV	NOVA	26875	307	8	A	1	0	2	1	1	0	75	106	29.91	3500	8	PZN451
200171	100215	H																					
200179	100229	C	4/18/70	G53	69	CHEV	MALIB	28369	307	8	A	1	0	2	1	1	0	75	99	29.80	3500	8	NMT541
200171	100215	R	4/17/70	G53	68	CHEV	NOVA	26875	307	8	A	1	0	2	1	1	0	70	102	30.02	3500	8	PZN451
200009	100532	C	6/09/70	G54	68	CHEV	BELAI	26042	327	8	A	1	0	4	1	1	C	79	100	30.13	4000	8	NRD263
200009	100533	H																					
200036	100531	C	6/09/70	G54	68	CHEV	CHEVE	45115	327	8	A	1	0	4	1	1	0	79	100	30.14	3500	8	RKP858
200039	100048	C	4/01/70	G54	68	CHEV	IMPAL	35910	327	8	A	1	0	4	1	1	0	72	84	29.58	4000	8	PCR364
200044	100056	C	4/02/70	G54	68	CHEV	CAPRI	69513	327	8	A	1	0	4	1	1	0	71	54	30.15	4000	8	NW5552
200044	100057	H																					
200054	100071	C	4/03/70	G54	68	CHEV	IMPAL	38683	327	8	A	1	0	4	1	1	0	73	34	30.09	4000	8	PY7273
200092	100121	C	4/08/70	G54	68	CHEV	IMPAL	17383	327	8	A	1	0	4	1	1	0	71	70	30.18	4000	8	MWY978
200097	100127	C	4/08/70	G54	68	CHEV	STAWA	20886	327	8	A	1	0	4	1	1	0	73	70	30.16	4500	8	NZX752
200097	100128	H																					
200116	100152	C	4/10/70	G54	68	CHEV	STAWA	32921	327	8	A	1	0	4	1	1	0	70	88	30.00	4500	8	NVJ369
200116	100153	H																					
200125	100162	C	4/11/70	G54	68	CHEV	IMPAL	18837	327	8	A	1	0	4	1	1	0	70	86	29.87	4000	8	[illegible]
200143	100181	C	4/14/70	G54	68	CHEV	IMPAL	48782	327	8	A	1	0	4	1	1	0	70	[illegible]	[illegible]	4000	8	KDV843
200143	100182	H																					
200155	100196	C	4/15/70	G54	68	CHEV	IMPAL	48432	327	8	A	1	0	4	1	1	0	73	112	29.90	4000	8	RCR536
200163	100204	C	4/16/70	G54	68	CHEV	MALIB	19743	327	8	A	1	0	4	1	1	0	73	106	29.99	3500	8	RPZ666
200176	100223	C	4/17/70	G54	68	CHEV	MALIB	25607	327	8	A	1	0	4	1	1	0	74	103	30.00	3500	8	PGT889
200207	100263	C	4/22/70	G54	68	CHEV	IMPAL	28466	327	8	A	1	0	4	1	1	0	77	105	29.96	4000	8	NSF360
200207	100264	H																					
200222	100241	C	4/24/70	G54	68	CHEV	MALIB	21325	327	8	A	1	0	4	1	1	0	79	113	30.09	3500	8	RL794
200256	100321	C	4/28/70	G54	68	CHEV	IMPAL	23502	327	8	A	1	0	4	1	1	0	83	97	29.79	4000	8	NVC360
200256	100322	H																					
200176	100228	R	4/18/70	G54	68	CHEV	MALIB	25613	327	8	A	1	0	4	1	1	0	75	99	29.84	3500	8	PGT889
200004	100005	C	3/26/70	G55	69	CHEV	CAPRI	32897	350	8	A	1	0	4	1	1	0	68	46	30.08	4000	8	NW522
200005	100006	C	3/26/70	G55	69	CHEV	CAPRI	27396	350	8	A	1	0	4	1	1	0	70	46	30.09	4000	8	PZX713
200014	100518	C	6/05/70	G55	69	CHEV	IMPAL	17304	350	8	A	1	0	4	1	1	0	78	66	30.13	4000	8	PK0241
200077	100478	C	6/01/70	G55	69	CHEV	CAPRI	17435	350	8	A	1	0	4	1	1	0	74	113	29.90	4000	8	PNX6A
200078	100476	C	6/01/70	G55	69	CHEV	IMPAL	16496	350	8	A	1	0	4	1	1	0	74	113	29.95	4000	8	RG0878
200081	100520	C	6/06/70	G55	69	CHEV	STAWA	20594	350	8	A	1	0	4	1	1	0	78	77	30.11	4500	8	PCG726
200091	100113	C	4/08/70	G55	69	CHEV	IMPAL	9011	350	8	A	1	0	4	1	1	0	70	70	30.19	4000	8	PW5223
200091	100120	H																					
200102	100135	C	4/09/70	G55	69	CHEV	CHEVE	10478	350	8	A	1	0	4	1	1	0	72	96	30.12	3500	8	NSH527
200140	100177	C	4/13/70	G55	69	CHEV	IMPAL	29963	350	8	A	1	0	4	1	1	0	82	100	29.94	4000	8	PTV146
200140	100178	H																					
200194	100251	C	4/21/70	G55	69	CHEV	MALIB	24085	350	8	A	1	0	4	1	1	0	75	82	29.89	3500	8	NDV389
200243	100317	C	4/28/70	G55	69	CHEV	CAPRI	6421	350	8	A	1	0	4	1	1	0	76	102	29.90	4000	8	NZM244
200255	100319	C	4/28/70	G55	69	CHEV	KINGS	24981	350	8	A	1	0	4	1	1	0	79	102	29.81	4500	8	NPP513
200255	100320	H																					
200257	100323	C	4/29/70	G55	69	CHEV	IMPAL	28599	350	8	A	1	0	4	1	1	0	77	100	29.87	4000	8	NY775
200278	100349	C	5/02/70	G55	69	CHEV	IMPAL	19346	350	8	A	1	0	4	1	1	0	68	75	30.26	4000	8	PJZ240
200278	100350	H																					
200478	100470	C	5/29/70	G54	69	CHEV	CAPRI	35550	350	8	A	1	0	4	1	1	0	78	111	30.02	4000	8	NCR185

HOUSTON, PHASE I — PROCESSING DATE- 03/27/72

COLD START CAR NO	VEHICLE RUN NO	S	--DATE--	MFG YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSD	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200509	101448	C	4/22/71	G55	AB	CHEV	IMPAL	47344	327	8	0	1	0	4	1	1	0	77	121	30.00	4000	8	RJ5311
200378	100475	R	6/01/70	355	A9	CHEV	CAPRI	35956	350	8	A	1	0	4	1	1	0	74	113	29.95	4000	8	RCR185
200074	100098	C	4/06/70	G56	68	CHEV	396	36169	396	8	A	1	0	4	1	1	0	70	56	30.19	4000	8	PRL971
200074	100099	H																					
200105	100139	C	4/09/70	G56	68	CHEV	MALIB	27222	396	8	A	1	0	4	1	1	0	72	96	30.14	4000	8	NMR748
200223	100242	C	4/24/70	G56	68	CHEV	CHEVE	14921	396	8	A	1	0	4	1	1	0	79	113	30.06	4000	8	NVL715
200283	100355	C	5/06/70	G56	68	CHEV	CHEVE	15907	396	8	A	1	0	4	1	1	0	68	88	30.41	4000	8	NZX970
200283	100356	H																					
200319	100400	C	5/15/70	G56	69	CHEV	CHEVE	19276	396	8	A	1	0	4	1	1	0	77	122	30.06	4000	8	NPS556
200339	100419	C	5/21/70	G56	69	CHEV	CHEVE	10631	396	8	A	1	0	4	1	1	0	76	102	30.13	4000	8	PLY476
200341	100423	C	5/23/70	G56	69	CHEV	CHEVE	32014	396	8	A	1	0	4	1	1	0	75	111	30.05	4000	8	PS229
200342	100424	C	5/23/70	G56	69	CHEV	CHEVE	16006	396	8	A	1	0	4	1	1	0	75	111	30.05	4000	8	PPM329
200343	100425	C	5/23/70	G56	68	CHEV	CHEVE	25515	396	8	A	1	0	4	1	1	0	75	111	30.06	4000	8	PNR254
200344	100426	C	5/23/70	G56	68	CHEV	CHEVE	44911	396	8	A	1	0	4	1	1	0	75	111	30.05	4000	8	PCY629
200345	100427	C	5/23/70	G56	66	CHEV	CHEVE	20705	396	8	A	1	0	4	1	1	0	75	111	30.04	4000	8	PHG454
200346	100437	C	5/25/70	G56	69	CHEV	IMPAL	29363	396	8	A	1	0	4	1	1	0	81	106	30.02	4500	8	PB797
200368	100456	C	5/27/70	G56	69	CHEV	CAPRI	14031	396	8	A	1	0	4	1	1	0	84	126	29.91	4500	8	NZS578
200409	100550	C	6/12/70	G56	69	CHEV	FLCA	17764	396	8	A	1	0	4	1	1	0	83	118	29.86	4000	8	588964
200410	100554	C	6/12/70	G56	68	CHEV	CAPRI	43148	396	8	A	1	0	4	1	1	0	86	128	29.89	4500	8	PGR382
200410	100556	R	6/13/70	G56	68	CHEV	CAPRI	43154	396	8	A	1	0	4	1	1	0	82	131	30.13	4500	8	PGR382
200009	100030	C	3/27/70	G61	69	PONT	LEMA	150 3	350	8	A	1	0	2	1	1	0	68	46	30.21	4000	8	RBM387
200045	100059	C	4/02/70	G61	68	PONT	FIERI	23249	350	8	A	1	0	2	1	1	0	74	55	30.14	3500	8	PGH913
200068	100088	C	4/04/70	G61	69	PONT	LEMAN	36834	350	8	A	1	0	2	1	1	0	75	42	29.99	4000	8	CYZ175
200094	100490	C	6/02/70	G61	69	PONT	LEMAN	30306	350	8	A	1	0	2	1	1	0	80	71	30.05	4000	8	RDT127
200098	100499	C	6/02/70	G61	69	PONT	LEMAN	18990	350	8	A	1	0	2	1	1	0	80	71	30.04	4000	8	PRK607
200115	100151	C	4/10/70	G61	64	PONT	LEMAN	20676	350	8	A	1	0	2	1	1	0	70	88	30.00	3500	8	PPJ181
200150	100180	C	4/14/70	G61	68	PONT	LEMAN	30746	350	8	A	1	0	2	1	1	0	72	42	29.98	3500	8	PYW928
200159	100200	C	4/15/70	G61	68	PONT	LEMAN	22321	350	8	A	1	0	2	1	1	0	74	112	29.89	4000	8	PC5203
200164	100205	C	4/16/70	G61	68	PONT	FIRE9	29935	350	8	A	1	0	2	1	1	0	73	106	29.99	4000	8	NPR824
200166	100207	C	4/16/70	G61	69	PONT	TEMPE	13753	350	8	A	1	0	2	1	1	0	73	106	29.99	4000	8	RC5974
200166	100208	H																					
200168	100211	C	4/16/70	G61	68	PONT	LEMAN	8732	350	8	A	1	0	2	1	1	0	75	107	29.93	4000	8	PZM603
200178	100225	C	4/17/70	G61	68	PONT	LEMAN	35983	350	8	A	1	0	2	1	1	0	74	103	29.99	4000	8	PPF574
200193	100234	C	4/20/70	G61	68	PONT	LEMAN	8682	350	8	A	1	0	2	1	1	0	70	72	29.79	4000	8	PHN169
200193	100235	H																					
200185	100237	C	4/20/70	G61	68	PONT	LEMAN	19643	350	8	A	1	0	2	1	1	0	72	73	29.78	4000	8	PFR185
200187	100239	C	4/20/70	G61	68	PONT	TEMPE	23064	350	8	A	1	0	2	1	1	0	74	71	29.75	4000	8	PTW236
200196	100248	C	4/21/70	G61	68	PONT	LEMAN	29575	350	8	A	1	0	2	1	1	0	74	82	29.92	4000	8	HT7860
200178	100226	R	4/18/70	G61	69	PONT	LEMAN	35983	350	8	A	1	0	2	1	1	0	74	99	29.86	4000	8	PPF574
200019	100023	C	3/29/70	G62	68	PONT	CATAL	25535	400	8	A	1	0	2	1	1	0	68	47	29.86	4000	8	PGL697
200050	100065	C	4/03/70	G62	68	PONT	CATAL	54131	400	8	A	1	0	2	1	1	0	68	34	30.14	4000	8	PCJ442
200058	100078	C	4/04/70	G62	69	PONT	CATAL	32727	400	8	A	1	0	2	1	1	0	86	64	29.99	4000	8	PFM465
200059	100517	C	6/05/70	G62	69	PONT	CATAL	34979	400	8	A	1	0	2	1	1	0	78	66	30.14	4500	8	NTZ251
200080	100487	C	6/02/70	G62	68	PONT	CATAL	30854	400	8	A	1	0	2	1	1	0	79	73	30.05	4000	8	NMT997
200090	100117	C	4/08/70	G62	69	PONT	EXECU	18093	400	8	A	1	0	2	1	1	0	68	70	30.18	4500	8	NXD69
200090	100118	H																					
200094	100123	C	4/08/70	G62	68	PONT	CATAL	29104	400	8	A	1	0	2	1	1	0	71	70	30.20	4000	8	PFC865
200103	100136	C	4/09/70	G62	69	PONT	CATAL	10743	400	8	A	1	0	2	1	1	0	72	96	30.16	4500	8	NSC278
200117	100154	C	4/10/70	G62	69	PONT	CATAL	9299	400	8	A	1	0	2	1	1	0	71	89	29.98	4500	8	PLR24
200120	100157	C	4/11/70	G62	69	PONT	EXECU	17069	400	8	A	1	0	2	1	1	0	68	86	29.86	4500	8	NYR187
200144	100183	C	4/14/70	G62	69	PONT	CATAL	20830	400	8	A	1	0	2	1	1	0	70	44	30.02	4500	8	PRK257
200165	100206	C	4/16/70	G62	68	PONT	CATAL	26955	400	8	A	1	0	2	1	1	0	73	106	29.93	4000	8	NTJ956
200167	100209	C	4/16/70	G62	69	PONT	CATAL	10266	400	8	A	1	0	2	1	1	0	75	107	29.99	4500	8	RBV524
200167	100210	H																					
200197	100249	C	4/21/70	G62	69	PONT	EXECU	16983	400	8	A	1	0	2	1	1	0	74	82	29.99	4500	8	NTC589
200197	100250	H																					
200247	100309	C	4/27/70	G62	68	PONT	CATAL	22385	400	8	A	1	0	2	1	1	0	77	110	29.79	4000	8	PHG171
200247	100314	R	4/28/70	G62	69	PONT	CATAL	22985	400	8	A	1	0	2	1	1	0	76	102	29.81	4000	8	PHG171
200174	100220	C	4/17/70	G63	69	PONT	BONNE	16635	428	8	A	1	0	4	1	1	0	72	102	30.04	4500	8	PDS13
200200	100253	C	4/21/70	G63	69	PONT	BONNE	32288	428	8	A	1	0	4	1	1	0	74	79	29.87	4500	8	NKX123
200227	100286	C	4/24/70	G63	68	PONT	BONNE	39984	428	8	A	1	0	4	1	1	0	82	113	30.06	4500	8	NY582
200227	100287	H																					
200249	100310	C	4/27/70	G63	69	PONT	GRAND	17492	428	8	A	1	0	4	1	1	0	77	110	29.78	4000	8	PXM476
200279	100344	C	5/01/70	G63	69	PONT	GRAND	11889	428	8	A	1	0	4	1	1	0	69	78	30.18	4000	8	PHD602
200275	100349	H																					
200312	100393	C	5/12/70	G63	69	PONT	BONNE	40688	428	8	A	1	0	4	1	1	0	78	109	30.11	4500	8	NZ910
200369	100491	C	5/27/70	G63	69	PONT	BONNE	9584	428	8	A	1	0	4	1	1	0	76	115	29.92	4500	8	PCY22
200357	100453	C	5/27/70	G63	69	PONT	BONNE	31803	428	8	A	1	0	4	1	1	0	83	125	29.93	4500	8	PNW715
200401	100530	C	6/09/70	G63	69	PONT	BONNE	14307	428	8	A	1	0	4	1	1	0	78	100	30.14	4500	8	PT4590
200404	100541	C	6/11/70	G63	69	PONT	BONNE	34959	428	8	A	1	0	4	1	1	0	78	110	29.75	4500	8	NCG69
200404	100542	H																					
200404	100548	C	6/11/70	G63	69	PONT	BONNE	24311	428	8	A	1	0	4	1	1	0	82	130	29.73	4500	8	KX582
200409	100549	C	6/12/70	G63	69	PONT	BONNE	27419	428	8	A	1	0	4	1	1	0	83	118	29.89	5000	8	NK4586
200413	100559	C	6/15/70	G63	69	PONT	BONNE	37001	428	8	A	1	0	4	1	1	0	81	114	30.05	4500	8	NY4248
200417	100563	C	6/16/70	G63	69	PONT	BONNE	17211	428	8	A	1	0	4	1	1	0	76	113	29.94	4500	8	PB0998
200419	100566	C	6/16/70	G63	69	PONT	GRAND	23009	428	8	A	1	0	4	1	1	0	82	119	30.12	4000	8	PSH11
200404	100551	R	6/12/70	G63	69	PONT	BONNE	24917	428	8	A	1	0	4	1	1	0	85	114	29.87	4500	8	NX582
200327	100403	C	3/31/70	G64	AA	OLDS	CUTLA	30237	350	8	A	1	0	2	1	1	0	68	74	29.90	4000	8	PFK219
200337	100364	C	4/01/70	G64	A9	OLDS	CUTLA	35133	350	8	A	1	0	2	1	1	0	71	84	29.93	4000	8	PJL444
200341	100529	C	6/08/70	G64	AA	OLDS	CUTLA	25963	350	8	A	1	0	2	1	1	0	86	94	30.14	4000	8	PZF386

COLD START VEHICLE INFORMATION HOUSTON, PHASE I PROCESSING DATE- 03/27/72

VEH NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOM	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	FVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200063	100519	C	6/05/70	G66	68	OLDS	EIGHT	16295	350	8	A	1	0	2	1	1	0	78	66	30.12	4500	8	HCY450
200092	100493	C	6/02/70	G66	68	OLDS	CUTLA	19989	350	8	A	1	0	2	1	1	0	72	106	30.07	4000	8	SHARNF
200082	100496	H																					
200093	100122	C	4/09/70	G66	69	OLDS	CUTLA	12557	350	8	A	1	0	2	1	1	0	71	70	30.20	4000	8	NLY498
200146	100185	C	4/14/70	G66	69	OLDS	F85	9295	350	8	A	1	0	2	1	1	0	70	44	30.01	3500	8	RRJ931
200214	100272	C	4/23/70	G66	68	OLDS	CUTLA	24135	350	5	A	1	0	2	1	1	0	77	110	30.06	4000	8	PTF356
200225	100286	C	4/24/70	G66	68	OLDS	CUTLA	22557	350	8	A	1	0	[illegible]	1	1	0	79	113	30.06	4000	8	RA4R1
200232	100293	C	4/25/70	G66	69	OLDS	CUTLA	11772	350	8	A	1	0	2	1	1	0	76	106	29.96	3500	8	PVK498
200264	100306	C	4/27/70	G66	69	OLDS	CUTLA	9552	350	8	A	1	0	2	1	1	0	77	110	29.79	3500	8	NWG276
200265	100307	C	4/27/70	G66	69	OLDS	CUTLA	30374	350	8	A	1	0	2	1	1	0	78	110	29.78	4000	8	PHK92
200251	100313	C	4/28/70	G66	69	OLDS	CUTLA	17869	350	8	A	1	0	2	1	1	0	76	102	29.79	4000	8	PVH234
200272	100341	C	5/01/70	G66	68	OLDS	CUTLA	29292	350	8	A	1	0	2	1	1	0	76	76	30.20	4000	8	NWD393
200273	100342	C	5/01/70	G66	68	OLDS	DELMO	25520	350	8	A	1	0	2	1	1	0	68	76	30.16	4500	8	NTZ192
200272	100348	R	5/02/70	G66	68	OLDS	CUTLA	29298	350	9	A	1	0	2	1	1	0	68	75	30.26	4000	8	NWD393
200083	100109	C	4/07/70	G67	68	OLDS	NINET	30771	455	8	A	1	0	4	1	1	0	69	60	30.20	4500	8	PPN139
200093	100110	H																					
200145	100184	C	4/14/70	G67	69	OLDS	NINET	13264	455	8	A	1	0	4	1	1	0	70	44	30.03	4500	8	NWV541
200199	100252	C	4/21/70	G67	68	OLDS	NINET	27951	455	8	A	1	0	4	1	1	0	75	80	29.88	4500	8	RBG624
200220	100278	C	4/24/70	G67	69	OLDS	NINET	43265	455	8	A	1	0	4	1	1	0	79	113	30.05	4500	8	NYF123
200229	100288	C	4/24/70	G67	68	OLDS	NINET	28454	455	8	A	1	0	4	1	1	0	83	112	30.03	4500	8	RDH748
200237	100298	C	4/25/70	G67	68	OLDS	NINET	36596	455	8	A	1	0	4	1	1	0	77	106	29.90	4500	8	PTT446
200258	100324	C	4/29/70	G67	69	OLDS	NINET	13838	455	8	A	1	0	4	1	1	0	77	100	29.88	4500	8	RD[illegible]7
200274	100343	C	5/01/70	G67	69	OLDS	NINET	29833	455	8	A	1	0	4	1	1	0	68	76	30.18	4500	8	85G382
200277	100347	C	5/02/70	G67	69	OLDS	NINET	9309	455	8	A	1	0	4	1	1	0	68	75	30.25	4500	8	NVF53
200305	100386	C	5/09/70	G67	68	OLDS	NINET	32980	455	8	A	1	0	4	1	1	0	72	96	29.92	4500	8	PFW782
200389	100495	C	6/03/70	G67	68	OLDS	NINET	36732	455	8	A	1	0	4	1	1	0	76	62	29.95	4500	8	NYX148
200389	100496	H																					
200393	100505	C	6/04/70	G67	69	OLDS	NINET	28934	455	8	A	1	0	4	1	1	0	77	62	29.99	4500	8	NRC976
200402	100535	C	6/10/70	G67	69	OLDS	NINET	24174	455	8	A	1	0	4	1	1	0	76	103	29.92	4500	8	PCZ403
200409	100545	C	6/11/70	G67	68	OLDS	NINET	30491	455	8	A	1	0	4	1	1	0	81	130	29.74	4500	8	RDN75
200420	100567	C	6/18/70	G67	69	OLDS	NINET	12567	455	8	A	1	0	4	1	1	0	82	118	30.14	4500	8	PDL248
200258	100329	R	4/30/70	G67	69	OLDS	NINET	13844	455	8	A	1	0	4	1	1	0	78	105	29.79	4500	8	RDN377
200053	100070	C	4/03/70	G71	68	BUIC	LESAB	32805	350	8	A	1	0	4	1	1	0	72	34	30.13	4500	8	NB5
200065	100095	C	4/06/70	G71	69	BUIC	LESAB	23875	350	8	A	1	0	4	1	1	0	73	45	30.03	4500	8	NWT526
200132	100169	C	4/13/70	G71	68	BUIC	LESAB	35918	350	8	A	1	0	4	1	1	0	80	96	29.99	4500	8	PHK150
200303	100382	C	5/08/70	G71	68	BUIC	SKYLA	34500	350	8	A	1	0	4	1	1	0	72	91	30.07	4000	8	RFP776
200319	100399	C	5/14/70	G71	68	BUIC	GRAND	16060	350	8	A	1	0	4	1	1	0	78	120	30.05	4000	8	PSK58
200331	100413	C	5/21/70	G71	69	BUIC	LESAB	21404	350	8	A	1	0	4	1	1	0	76	102	30.12	4500	8	RSK494
200349	100432	C	5/25/70	G71	68	BUIC	LESAB	37892	350	8	A	1	0	4	1	1	0	75	95	30.01	4500	8	PSZ498
200352	100435	C	5/25/70	G71	68	BUIC	SKYLA	36975	350	8	A	1	0	4	1	1	0	80	105	30.04	4000	8	PVR311
200360	100445	C	5/26/70	G71	68	BUIC	SKYLA	52893	350	8	A	1	0	4	1	1	0	84	113	30.00	4000	8	PVN275
200363	100449	C	5/27/70	G71	69	BUIC	SKYLA	29345	350	8	A	1	0	4	1	1	0	76	115	29.91	4000	8	RDL935
200371	100459	C	5/28/70	G71	68	BUIC	SKYLA	32398	350	8	A	1	0	4	1	1	0	78	112	29.96	4000	8	PLV622
200371	100460	H																					
200377	100469	C	5/29/70	G71	68	BUIC	LESAB	28607	350	8	A	1	0	4	1	1	0	77	110	30.03	4500	8	PSW623
200379	100471	C	5/29/70	G71	68	BUIC	SKYLA	34725	350	8	A	1	0	4	1	1	0	78	111	30.03	4000	8	NPN664
200387	100492	C	6/02/70	G71	69	BUIC	SKYLA	7453	350	8	A	1	0	4	1	1	0	80	70	30.04	4000	8	NWS908
200390	100500	C	6/04/70	G71	68	BUIC	SKYLA	41653	350	8	A	1	0	4	1	1	0	73	70	29.99	4000	8	PKG724
200303	100390	R	5/11/70	G71	68	BUIC	SKLK	34510	350	8	A	1	0	4	1	1	0	74	89	30.01	4000	8	RFP776
200390	100509	R	6/05/70	G71	68	BUIC	SKYLA	41660	350	8	A	1	0	4	1	1	0	72	67	31.14	4000	8	PKG724
200062	100082	C	4/04/70	G72	69	BUIC	WILD	18011	430	8	A	1	0	4	1	1	0	72	45	30.05	4500	8	PTW363
200064	100084	C	4/04/70	G72	68	BUIC	WILDC	49191	430	8	A	1	0	4	1	1	0	73	45	30.03	4500	8	PCC676
200129	100166	C	4/11/70	G72	69	BUIC	WILDC	21622	430	8	A	1	0	4	1	1	0	70	86	29.79	4500	8	NYM292
200133	100170	C	4/13/70	G72	68	BUIC	WILDC	34862	430	8	A	1	0	4	1	1	0	80	90	29.99	4500	8	NVV47
200135	100172	C	4/13/70	G72	69	BUIC	ELECT	8458	430	8	A	1	0	4	1	1	0	80	90	29.99	4500	8	PKK858
200184	100236	C	4/20/70	G72	68	BUIC	ELECT	17919	430	8	A	1	0	4	1	1	0	72	72	29.78	4500	8	PGX259
200185	100238	C	4/20/70	G72	69	BUIC	ELECT	18060	430	8	A	1	0	4	1	1	0	74	71	29.75	4500	8	PFZ911
200192	100244	C	4/21/70	G72	68	BUIC	WILDC	18592	430	8	A	1	0	4	1	1	0	72	82	29.90	4500	8	RJV822
200212	100269	C	4/23/70	G72	69	BUIC	WILDC	4533	430	8	A	1	0	4	1	1	0	77	110	30.06	4500	8	PJR103
200219	100277	C	4/23/70	G72	68	BUIC	WILDC	27959	430	8	A	1	0	4	1	1	0	80	110	30.05	4500	8	RCY587
200233	100294	C	4/25/70	G72	68	BUIC	ELECT	48790	430	8	A	1	0	4	1	1	0	76	106	29.93	4500	8	PDD106
200241	100303	C	4/27/70	G72	69	BUIC	WILDC	49617	430	8	A	1	0	4	1	1	0	77	110	29.78	4500	8	PLP335
200242	100304	C	4/27/70	G72	69	BUIC	WILDC	25685	430	8	A	1	0	4	1	1	0	77	110	29.79	4500	8	NTT695
200252	100315	C	4/28/70	G72	69	BUIC	WILDC	7486	430	8	A	1	0	4	1	1	0	76	102	29.81	4500	8	RJR
200252	100316	H																					
200267	100335	C	4/30/70	G72	69	BUIC	WILDC	5586	430	8	A	1	0	4	1	1	0	79	103	29.83	4500	8	NXF499
200298	100361	C	5/05/70	G72	69	BUIC	ELECT	11947	430	8	A	1	0	4	1	1	0	68	40	30.40	4500	8	PVX59
200288	100366	R	5/05/70	G72	69	BUIC	ELECT	11954	430	8	A	1	0	4	1	1	0	74	42	30.32	4500	8	PVX53
200142	100180	C	4/14/70	G76	69	CADI	DEVIL	8819	472	8	A	1	0	4	1	2	0	70	44	30.03	5000	8	NTH472
200156	100195	C	4/15/70	G76	69	CADI	DEVIL	5311	472	8	A	1	0	4	1	2	0	73	112	29.90	5000	8	PTV505
200173	100219	C	4/17/70	G76	68	CADI	FLEET	8389	472	8	A	1	0	4	1	2	0	70	102	30.04	5000	8	NVF229
200268	100333	C	4/30/70	G76	69	CADI	DEVIL	13116	472	8	A	1	0	4	1	2	0	78	105	29.81	5000	8	NPH813
200289	100363	C	5/05/70	G76	69	CADI	DEVIL	10425	472	8	A	1	0	4	1	2	0	69	34	30.43	5000	8	NRF176
200301	100393	C	5/08/70	G76	69	CADI	CALAI	32659	472	8	A	1	0	4	1	2	0	73	90	30.07	5000	8	PVX113
200313	100394	C	5/13/70	G76	69	CADI	DEVIL	12624	472	8	A	1	0	4	1	2	0	76	106	30.10	5000	8	NZN15
200325	100406	C	5/19/70	G76	69	CADI	DEVIL	19753	472	8	A	1	0	4	1	2	0	76	90	30.17	5000	8	PZW263
200330	100412	C	5/21/70	G76	68	CADI	DEVIL	59106	472	8	A	1	0	4	1	2	0	77	102	30.03	5000	8	NYX568
200340	100422	C	5/23/70	G76	68	CADI	DEVIL	23720	472	8	A	1	0	4	1	2	0	75	111	30.07	5000	8	NRP9[illegible]
200355	100435	C	5/26/70	G76	69	CADI	DEVIL	29118	472	8	A	1	0	4	1	2	0	74	110	29.99	5000	8	NRP[illegible]
200361	100448	C	5/26/70	G76	69	CADI	DEVIL	18592	472	8	A	1	0	4	1	2	0	86	111	29.96	5000	8	NWJ813

PROCESSING DATE- 03/27/72

OLD AR NO	START RUN NO	VEHICLE S	INFORMATION --DATE--	MFG	YR	MAKE	HOUSTON MODEL	PHASE I ORDER	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	FVP	TMP	HUM	BAROM	INRT	HP	LIC NO
00166	100452	C	5/27/70	G76	69	CADI	DEVIL	9782	472	8	A	1	0	4	1	2	0	83	125	29.92	5000	8	PMD97
00181	100474	C	5/29/70	G76	69	CADI	DEVIL	13599	472	8	A	1	0	4	1	2	0	78	112	30.00	5000	8	PCD960
00194	100482	C	6/01/70	G76	69	CADI	DEVIL	19649	472	8	A	1	0	4	1	2	0	75	114	29.94	5000	8	RMK183
00173	100227	R	6/14/70	G76	68	CADI	FLEET	8980	472	8	A	1	0	4	1	2	0	74	99	29.86	5000	8	NVF229
00008	100007	C	3/26/70	V81	69	VW	STD	17865	91	4	M	1	0	1	1	1	0	68	34	30.09	2000	4	PSW519
0001A	100020	C	3/28/70	V81	69	VOLK	STAND	4434	91	4	M	1	0	1	1	1	0	68	64	29.82	2000	4	PSG545
00017	100021	C	3/28/70	V81	68	VOLK	STAND	20796	91	4	A	1	0	1	1	1	0	68	64	29.82	2000	4	NFC264
00031	100323	C	6/08/70	V81	68	VOLK	STAND	36722	91	4	M	1	0	1	1	1	0	79	108	30.21	2000	4	NZC920
0004A	100555	C	6/12/70	V81	69	VOLK	STAND	20656	91	4	M	0	0	1	1	1	0	86	128	29.88	2000	4	NM2932
00047	100524	C	6/08/70	V81	68	VOLK	STAND	39239	91	4	M	0	0	1	1	1	0	79	108	30.20	2000	4	RJG543
00049	100063	C	4/03/70	V81	68	VOLK	STAND	27509	91	4	M	0	0	1	1	1	0	68	34	30.13	2000	4	PDX604
00049	100534	C	6/09/70	V81	68	VOLK	STAND	39386	91	4	M	1	0	1	1	1	0	80	100	30.12	2000	4	RBF275
00066	100522	C	6/06/70	V81	69	VOLK	STAND	27441	91	4	M	1	0	1	1	1	0	78	77	30.10	2000	4	NGN998
00067	100466	C	5/29/70	V81	69	VOLK	STAND	21680	91	4	M	1	0	1	1	1	0	77	110	30.01	2000	4	PRL559
00089	100497	C	6/03/70	V81	69	VOLK	STAND	34562	91	4	M	0	0	1	1	1	0	77	60	29.94	2000	4	PDK335
00137	100174	C	4/13/70	V81	69	VOLK	STAND	32577	91	4	M	0	0	1	1	1	0	82	100	29.99	2000	4	NM5337
00161	100202	C	4/15/70	V81	69	VOLK	STD	13560	91	4	M	1	0	1	1	1	.	74	112	29.89	2000	4	NVM852
00177	100224	C	4/17/70	V81	68	VOLK	STAND	20627	91	4	A	0	0	1	1	1	0	74	103	30.00	2000	4	PJP93
00188	100240	C	4/20/70	V81	68	VOLK	STAND	18974	91	4	M	0	0	1	1	1	0	74	71	29.71	2000	4	NZ5995
00421	100517	C	6/05/70	V91	69	VOLK	STAND	11104	91	4	M	0	0	1	1	1	0	76	66	30.16	2000	4	PKW15
00503	101184	C	3/01/71	V81	69	VOLK	BEETL	13688	91	4	A	1	0	1	1	1	0	69	66	30.25	2250	4	1334630
00177	100239	R	4/18/70	V81	68	VOLK	STAND	20627	91	4	A	0	0	1	1	1	0	75	99	29.80	2000	4	PJP93
00034	100042	C	4/01/70	V82	68	VOLK	FTBK	29146	97	4	M	0	1	0	1	1	0	70	84	29.59	2500	4	PVV365
00034	100043	M																					
00119	100155	C	4/10/70	V82	69	VOLK	PTRK	16255	97	4	M	1	1	0	1	1	0	71	89	29.98	2500	4	PVL958
00191	100190	C	4/14/70	V82	68	VOLK	SQRK	23736	97	4	M	1	1	0	1	1	0	73	42	29.98	2500	4	PS343
00192	100191	C	4/14/70	V82	68	VOLK	SQRK	50013	97	4	M	0	1	0	1	1	0	73	42	29.99	2500	4	PVP893
00192	100192	M																					
00229	100289	C	4/24/70	V82	68	VOLK	SQRK	18047	97	4	M	0	1	0	1	1	0	83	112	29.99	2500	4	PRJ229
00230	100290	C	4/24/70	V82	68	VOLK	SQRK	92416	97	4	M	0	1	0	1	1	0	83	112	29.99	2500	4	NDY676
00240	100302	C	4/24/70	V82	68	VOLK	SQRK	24797	97	4	M	0	1	0	1	1	0	80	105	29.82	2500	4	RKW207
00250	100312	C	4/27/70	V82	68	VOLK	SQRK	17481	97	4	M	1	1	0	1	1	0	80	110	29.74	2500	8	PBX72
00261	100327	C	4/29/70	V82	68	VOLK	SQRK	19635	97	4	M	0	1	0	1	1	0	82	112	29.89	2500	4	PRZ857
00296	100372	C	5/06/70	V82	68	VOLK	FTRK	33992	97	4	M	0	1	0	1	1	0	73	63	30.35	2500	4	PFR502
00296	100373	R	5/07/70	V82	68	VOLK	FTRK	33992	97	4	M	0	1	0	1	1	0	72	86	30.24	2500	4	PFR502
00299	100378	C	5/08/70	V82	69	VOLK	SQRK	6688	97	4	M	1	1	0	1	1	0	72	91	30.04	2500	4	NTD999
00300	100379	C	5/08/70	V82	69	VOLK	FTRK	18682	97	4	M	0	1	0	1	1	0	72	91	30.06	2500	4	NPY591
00304	100383	C	5/09/70	V82	68	VOLK	SQRK	16274	97	4	M	1	1	0	1	1	0	72	96	29.92	2500	4	PCR402
00376	100445	C	5/28/70	V82	68	VOLK	FTRK	10868	97	4	M	1	1	0	1	1	0	76	110	29.83	2500	4	PVH793
00397	100511	C	6/05/70	V82	68	VOLK	FTRK	29960	97	4	M	1	1	0	1	1	0	74	66	30.16	2500	8	NTC971
00501	101062	C	2/08/71	V82	69	VOLK	FTBK	18662	97	4	A	1	1	0	1	1	0	70	63	30.80	2500	4	PGT205

TABLE A-5

Houston

Phase II

HOUSTON PHASE II — PROCESSING DATE= 03/27/72

CHLD CAR NO	START RUN NO	VEHICLE S	INFORMATION --DATE--	MFG	YR	MAKE	MODEL	ODOMN	CID	CYL	TRN	A/C	FSU	VIS	PCV	EXH	CVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200267	200725	C	12/02/70	A01	69	AMER	RAMBL	25486	232	6	0	1	0	1	1	1	0	78	95	30.60	3000	8	NRL750
200271	201029	C	2/03/71	A01	68	AMER	JAVEL	51220	232	6	3	1	0	1	1	1	0	69	61	30.50	3000	8	NTY999
200297	200740	C	12/11/70	A01	68	AMER	JAVEL	37903	232	6	3	0	0	1	1	1	0	69	93	30.40	3000	8	KKZ413
200314	200741	C	12/09/70	A01	68	AMER	JAVEL	39672	232	6	3	0	0	1	1	1	0	70	64	30.60	3000	8	RDN799
200314	200742	H																					
200332	200778	C	12/11/70	A01	69	AMER	JAVEL	32756	232	6	0	1	0	1	1	1	0	68	59	30.40	3000	8	PGN610
200337	200801	C	12/14/70	A01	68	AMER	JAVEL	29778	232	6	3	0	0	1	1	1	0	69	52	30.70	3000	8	PZN93
200347	200865	C	12/21/70	A01	68	AMER	RAMBL	44471	232	6	3	1	0	1	1	1	0	79	105	30.30	3000	8	RCD39
200347	200866	H																					
200351	200799	C	12/14/70	A01	69	AMER	AMBAS	12741	232	6	0	1	0	1	1	1	0	77	76	30.70	3500	8	PMH494
200356	200943	C	1/19/71	A01	69	AMER	JAVEL	11236	232	6	3	1	0	1	1	1	0	68	66	30.90	3000	8	NWN659
200359	200804	C	12/15/70	A01	68	AMER	REBEL	23716	232	6	0	1	0	1	1	1	0	68	59	30.25	3500	8	NND612
200359	200805	H																					
200373	200821	C	12/16/70	A01	68	AMER	AMBAS	30031	232	6	0	1	0	1	1	1	0	72	57	30.40	3500	8	43W1074
200262	200726	R	12/03/70	A01	69	AMER	STAWA	25498	232	6	0	1	0	1	1	1	0	78	95	30.60	3000	8	NRL750
200096	201183	C	3/01/71	C11	68	DODG	DART	29992	225	6	0	1	0	1	1	1	0	69	66	30.25	3000	8	PHJ324
200122	200613	C	10/26/70	C11	68	PLYM	FURY	37034	225	6	3	1	0	1	1	1	0	82	119	30.15	4000	8	PTF143
200123	200705	C	11/25/70	C11	69	PLYM	VALIA	13897	225	6	3	1	0	1	1	1	0	68	58	30.60	3000	8	PGZ53
200181	200669	C	11/16/70	C11	68	PLYM	VALIA	16143	225	6	0	1	0	1	1	1	0	71	89	30.70	3000	8	PGY472
200215	200684	C	11/19/70	C11	68	PLYM	VALIA	61016	225	6	3	1	0	1	1	1	0	79	5	30.05	3000	8	RDN274
200234	200692	C	11/23/70	C11	69	DODG	DART	24092	225	6	0	1	0	1	1	1	0	68	62	30.80	3000	8	PGH856
200238	200851	C	12/19/70	C11	69	DODG	DART	39056	225	6	3	0	0	1	1	1	0	78	90	30.50	3000	8	PXM519
200259	200786	C	12/12/70	C11	68	DODG	DART	37971	225	6	0	1	0	1	1	1	0	68	58	30.60	3000	8	PHX539
200284	200891	C	1/05/71	C11	68	DODG	DART	69628	225	6	0	1	0	1	1	1	0	69	65	30.75	3000	8	NXX528
200284	200892	H																					
200310	200897	C	1/06/71	C11	69	PLYM	VALIA	23009	225	6	0	1	0	1	1	1	0	68	62	30.85	3500	8	RJD687
200310	200899	H																					
200317	201015	C	1/29/71	C11	68	DODG	DART	17829	225	6	0	1	0	1	1	1	0	76	93	30.45	3000	8	PTV927
200321	200911	C	1/08/71	C11	69	DODG	DART	22821	225	6	0	1	0	1	1	1	0	68	58	30.75	3000	8	RFD156
200056	201189	R	3/02/71	C11	68	DODG	DART	25992	225	6	0	1	0	1	1	1	0	69	71	30.15	3000	8	PHJ324
200013	200904	C	1/06/71	C12	69	DODG	CHARG	23799	318	8	0	1	0	2	1	1	0	68	62	30.80	3500	8	EB3872
200015	200895	C	1/05/71	C12	68	DODG	CORON	46467	318	8	0	1	0	2	1	1	0	69	65	30.70	3500	8	NFH638
200018	200579	C	10/16/70	C12	68	DODG	POLAR	78762	318	8	0	1	0	2	1	1	0	68	54	30.75	4000	8	NXL366
200018	200579	H																					
200025	200797	C	12/14/70	C12	69	DODG	CHARG	15137	318	8	0	1	0	2	1	1	0	68	58	30.80	3500	8	PJP761
200038	200775	C	12/10/70	C12	69	PLYM	SUBUR	32399	318	8	0	1	0	2	1	1	0	78	90	30.40	4500	8	NMR638
200073	200956	C	10/21/70	C12	69	PLYM	FURY	27052	318	8	0	1	0	2	1	1	0	79	95	30.14	4000	8	RJM708
200095	200594	C	10/22/70	C12	69	PLYM	FURY	11441	318	8	0	1	0	2	1	1	0	77	93	30.12	4000	8	PFK477
200099	200639	C	10/30/70	C12	69	PLYM	FURY	17643	318	8	0	1	0	2	1	1	0	65	55	30.60	4000	8	PRF547
200108	200616	C	10/27/70	C12	68	PLYM	FURY	30603	318	8	0	1	0	2	1	1	0	79	130	30.15	4000	8	PGZ790
200110	200731	C	12/04/70	C12	68	PLYM	FURY	52785	318	8	0	1	0	2	1	1	0	74	90	30.70	4000	8	PKL818
200111	200912	C	1/08/71	C12	69	PLYM	STAWA	35688	318	8	0	1	0	2	1	1	0	68	62	30.75	4000	8	NXC370
200169	200750	C	12/07/70	C12	69	DODG	CORON	34303	318	8	0	1	0	2	1	1	0	79	87	30.70	3500	8	PGC895
200169	200752	R	12/08/70	C12	69	DODG	CORON	34303	318	8	0	1	0	2	1	1	0	68	58	30.65	3500	8	PGC895
200007	200907	C	1/07/71	C13	68	PLYM	FURY	33731	383	8	0	1	0	2	1	1	0	68	58	30.80	4000	8	NWW539
200032	200577	C	10/16/70	C13	69	PLYM	FURY	62778	383	8	0	1	0	2	1	1	0	70	59	30.75	4500	8	PVB360
200042	200580	C	10/19/70	C13	69	CHRY	NEWPO	17574	383	8	0	1	0	2	1	1	0	72	66	30.14	4500	8	NTY277
200128	200741	C	12/07/70	C13	68	PLYM	FURY	34760	383	8	0	1	0	2	1	1	0	68	62	30.80	4000	8	NPF61
200147	200636	C	10/30/70	C13	69	PLYM	SATEL	33135	383	8	0	1	0	2	1	1	0	61	53	30.55	4000	8	NP5270
200158	200713	C	12/01/70	C13	68	CHRY	NEWPO	58341	383	8	0	1	0	2	1	1	0	71	58	30.50	4500	8	NPT493
200162	200650	C	11/12/70	C13	68	PLYM	FURY	27775	383	8	0	1	0	2	1	1	0	72	61	30.45	4000	8	PCT827
200194	200677	C	11/17/70	C13	69	PLYM	FURY	30506	383	8	0	1	0	2	1	1	0	77	77	30.30	4000	8	PMR20
200201	200696	C	11/20/70	C13	69	CHRY	NEWPO	57505	383	8	0	1	0	2	1	1	0	77	57	30.50	4500	8	NBK100
200204	200678	C	11/18/70	C13	69	CHRY	NEWPO	33317	383	8	0	1	0	2	1	1	0	68	59	30.40	4500	8	NPV33
200216	200791	C	12/13/70	C13	68	DODG	CHARG	20257	383	8	0	1	0	2	1	1	0	68	58	30.80	3500	8	PRK270
200217	200723	C	12/02/70	C13	69	PLYM	STAWA	64163	383	8	0	.	0	2	1	1	0	77	96	30.60	4500	8	NBN644
200217	200729	R	12/03/70	C13	68	PLYM	STAWA	64163	383	8	0	1	0	2	1	1	0	77	91	30.60	4500	8	NBN644
200113	200618	C	10/27/70	C14	68	CHRY	IMPER	19979	440	8	0	1	0	4	1	1	0	74	98	30.15	5500	8	PBF305
200124	200755	C	12/08/70	C14	68	CHRY	IMPER	11256	440	8	0	1	0	4	1	1	0	76	72	30.65	5500	8	RDK223
200127	200661	C	11/13/70	C14	69	CHRY	300	19601	440	8	0	1	0	4	1	1	0	73	65	30.02	4500	8	RFT684
200149	200652	C	11/12/70	C14	68	CHRY	300	54496	440	8	0	1	0	4	1	1	0	73	78	30.40	4500	8	PDP151
200180	200654	C	11/12/70	C14	68	CHRY	NEWYO	30593	440	8	0	1	0	4	1	1	0	70	60	30.25	4500	8	NVD652
200224	200689	C	11/23/70	C14	69	DODG	CHARG	30257	440	8	0	1	0	4	1	1	0	70	59	30.80	4000	8	PGJ424
200246	200736	C	12/04/70	C14	68	CHRY	300	25591	440	8	0	1	0	4	1	1	0	78	89	30.65	4500	8	PPN799
200266	200708	C	12/01/70	C14	68	CHRY	300	56433	440	8	0	1	0	4	1	1	0	68	54	30.50	4500	8	NYF323
200266	200709	H																					
200289	200749	C	12/09/70	C14	68	DODG	CHARG	49155	440	8	0	1	0	4	1	1	0	79	88	30.60	4000	8	PPD894
200307	200920	C	1/11/71	C14	68	DODG	CHARG	56340	440	8	0	1	0	4	1	1	0	71	91	30.50	4000	8	NFY187
200316	200760	C	12/09/70	C14	69	CHRY	300	7947	440	8	0	1	0	4	1	1	0	69	57	30.65	4500	8	PGH788
200350	200825	C	12/17/70	C14	68	CHRY	300	33190	440	8	0	1	0	4	1	1	0	68	54	30.60	4500	8	NNX894
200350	200834	R	12/18/70	C14	68	CHRY	300	33190	440	8	0	1	0	4	1	1	0	68	55	30.45	4500	8	NNX894
200029	200586	C	10/20/70	F31	68	FORD	FALCO	34021	200	6	0	1	0	1	1	1	0	70	70	30.14	3000	8	PSL233
200075	200612	C	10/26/70	F31	68	FORD	MUSTA	44493	200	6	0	1	0	1	1	1	0	78	108	30.12	3000	8	NVJ640
200193	200671	C	11/17/70	F31	68	FORD	MUSTA	21786	200	6	0	1	0	1	1	1	0	69	57	30.50	3000	8	NVC180
200235	200830	C	12/17/70	F31	69	FORD	FALCO	22429	200	6	0	1	0	1	1	1	0	72	65	30.50	3000	8	NZK605
200299	200746	C	12/09/70	F31	69	FORD	MUSTA	20446	200	6	0	1	0	1	1	1	0	77	91	30.50	3500	8	PWH972
200346	200910	C	1/08/71	F31	68	FORD	MUSTA	44074	200	6	3	1	0	1	1	1	0	68	62	30.75	3000	8	NFY465
200347	200772	C	12/10/70	F31	69	FORD	MUSTA	41107	200	6	3	0	0	1	1	1	0	77	91	30.50	3500	8	PPX727
200347	200773	H																					
200370	200808	C	12/15/70	F31	69	FORD	MUSTA	35647	200	6	0	1	0	1	1	1	0	68	60	30.10	3000	8	RDF900

HOUSTON, PHASE II — PROCESSING DATE= 03/27/72

CAR NO	START VEHICLE RUN NO	S	INFORMATION --DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200382	200864	C	12/21/70	F31	68	FORD	FAIRL	29797	200	6	0	1	0	1	1	1	0	79	106	30.25	3500	8	PHL386
200384	200867	C	12/19/70	F31	69	FORD	FALCO	25224	200	A	3	0	0	1	1	1	0	71	67	30.50	3000	8	NXM83
200403	200815	C	12/16/70	F31	69	FORD	STAWA	44605	200	6	0	0	0	1	1	1	0	68	59	30.40	3500	8	NZ1846
200411	200859	C	12/20/70	F31	68	FORD	FAIRL	33901	200	6	0	0	0	1	1	1	0	69	61	30.50	3500	8	NR1745
200417	200878	C	12/23/70	F31	69	FORD	FALCO	16710	200	A	0	1	0	1	1	1	0	68	63	30.30	3000	8	PHG648
200293	200770	C	12/10/70	F31	69	FORD	MUSTA	20466	200	6	0	1	0	1	1	1	0	69	61	30.55	3500	8	PW4972
200263	200751	C	12/08/70	F32	70	FORD	MAVER	16477	201	6	0	1	0	1	1	1	0	68	58	30.65	3000	8	PZF996
200278	200847	C	12/21/70	F32	70	FORD	MAVER	32078	201	6	3	1	0	1	1	1	0	79	105	30.30	3000	8	NRT267
200290	200751	C	12/08/70	F32	70	FORD	MAVER	30727	201	A	3	0	0	1	1	1	0	69	57	30.65	3000	8	NMZ817
200322	200828	C	12/17/70	F32	70	FORD	MAVER	11047	201	A	3	1	0	1	1	1	0	70	59	30.60	3000	8	RHR38
200324	200758	C	12/09/70	F32	70	FORD	MAVER	42614	201	6	3	1	0	1	1	1	0	68	58	30.60	3000	8	RGZ149
200327	200754	C	12/08/70	F32	70	FORD	MAVER	12025	201	A	0	0	0	1	1	1	0	68	58	30.65	3000	8	NVT705
200335	200806	C	12/15/70	F32	70	FORD	MAVER	24549	201	6	3	0	0	1	1	1	0	69	62	30.25	3000	8	RSL966
200339	200809	C	12/15/70	F32	70	FORD	MAVER	22613	200	6	0	1	0	1	1	1	0	68	63	30.10	3000	8	PJJ708
200375	200838	C	12/18/70	F32	70	FORD	MAVER	18973	201	6	3	1	0	1	1	1	0	69	53	30.45	3000	8	PDF698
200389	200876	C	12/22/70	F32	70	FORD	MAVER	13933	201	6	0	1	0	1	1	1	0	72	80	30.20	3000	8	NNP764
200388	200877	C	12/23/70	F32	70	FORD	MAVER	13933	201	6	0	1	0	1	1	1	0	68	59	30.30	3000	8	NNP764
200001	200575	C	10/15/70	F33	68	FORD	GALAX	44734	302	8	0	1	0	2	1	1	0	74	76	30.50	4000	8	PDP28
200020	200921	C	1/11/71	F33	69	FORD	FALCO	14855	302	8	0	1	0	2	1	1	0	78	80	30.90	3500	8	POOR BR
200024	200583	C	10/19/70	F33	69	FORD	TORIN	26945	302	8	0	1	0	2	1	1	0	64	66	30.14	3500	8	NWY955
200029	200649	C	11/11/70	F33	69	FORD	RANCH	20337	302	8	3	0	0	2	1	1	0	78	85	30.30	4500	8	PXD227
200104	200617	C	10/27/70	F33	69	FORD	MUSTA	31745	302	8	0	1	0	2	1	1	0	79	130	30.15	3500	8	PWD862
200107	200623	C	10/28/70	F33	69	FORD	LTD	46541	302	8	0	1	0	2	1	1	0	64	57	30.52	4500	8	PDF534
200121	200628	C	10/28/70	F33	68	FORD	GALAX	55298	302	8	0	1	0	2	1	1	0	86	111	30.50	4000	8	PWN740
200134	200664	C	11/16/70	F33	68	FORD	STAWA	11199	302	8	0	1	0	2	1	1	0	68	58	30.80	4000	8	NSJ680
200205	200876	C	11/17/70	F33	69	FORD	TORIN	24418	302	8	0	1	0	2	1	1	0	72	61	30.45	3500	8	NS5740
200211	200699	C	11/24/70	F33	68	MERC	COUGA	44577	302	8	0	1	0	2	1	1	0	70	63	30.90	3500	8	RHM553
200224	200831	C	12/17/70	F33	69	FORD	FAIRL	27537	302	8	0	1	0	2	1	1	0	72	65	30.50	3500	8	PCB271
200226	200837	R	12/18/70	F33	69	FORD	FAIRL	27540	302	8	0	1	0	2	1	1	0	76	93	30.40	3500	8	PCB271
200257	200902	C	1/06/71	F34	69	FORD	FAIRL	31939	351	8	0	1	0	2	1	1	0	68	62	30.80	3500	8	NXZ797
200071	200609	C	10/23/70	F34	69	FORD	GALAX	20261	351	8	0	1	0	2	1	1	0	78	114	30.00	4500	8	PJ5356
200213	200827	C	12/17/70	F34	69	FORD	GALAX	19596	351	8	0	1	0	2	1	1	0	70	59	30.60	4500	8	PZY205
200231	200690	C	11/23/70	F34	69	FORD	MUSTA	15251	351	8	3	1	0	2	1	1	0	68	58	30.85	3500	8	NVY922
200236	200704	C	11/25/70	F34	69	FORD	STAWA	39505	351	8	0	1	0	2	1	1	0	70	59	30.60	4000	8	NWD989
200249	200691	C	11/23/70	F34	69	FORD	LTD	34896	351	8	0	1	0	2	1	1	0	68	58	30.85	4000	8	PRF189
200260	200712	C	12/01/70	F34	69	FORD	TORIN	19459	351	8	0	1	0	2	1	1	0	71	58	30.50	3500	8	PSW62
200287	200840	C	12/18/70	F34	69	FORD	LTD	17384	351	8	0	1	0	2	1	1	0	77	92	30.40	4500	8	NWL45
200291	200745	C	12/07/70	F34	69	FORD	LTD	31934	351	8	0	1	0	2	1	1	0	75	95	30.80	4500	8	PSK448
200308	200774	C	12/10/70	F34	69	FORD	MUSTA	17960	351	8	0	1	0	2	1	1	0	78	90	30.40	3500	8	PCX189
200311	200790	C	12/12/70	F34	69	FORD	MUSTA	21712	351	8	0	1	0	2	1	1	0	70	64	30.50	3500	8	PLY509
200311	200793	R	12/13/70	F34	69	FORD	MUSTA	21712	351	8	0	1	0	2	1	1	0	68	58	30.80	3500	8	PLY509
200061	200668	C	11/16/70	F35	69	FORD	GALAX	37459	390	8	0	1	0	2	1	1	0	71	57	30.80	4000	8	PSY217
200098	200622	C	10/27/70	F35	69	FORD	LTD	30469	390	8	0	1	0	2	1	1	0	87	143	30.15	4000	8	NMV908
200139	200667	C	11/16/70	F35	68	FORD	STAWA	35539	390	8	0	1	0	2	1	1	0	69	61	30.80	4500	8	RHK425
200153	200629	C	10/29/70	F35	69	FORD	COUNT	22299	390	8	0	1	0	2	1	1	0	62	44	30.62	4500	8	PGD810
200170	200648	C	11/12/70	F35	69	FORD	COUNT	45844	390	8	0	1	0	2	1	1	0	68	59	30.40	4500	8	PVV592
200172	201185	C	3/01/71	F35	68	MERC	STAWA	52972	390	8	0	1	0	2	1	1	0	69	71	30.25	4500	8	NPS763
200175	200837	C	10/30/70	F35	68	FORD	COUNT	54492	390	8	0	1	0	2	1	1	0	61	53	30.55	4500	8	PGH122
200190	200651	C	11/12/70	F35	69	FORD	XL	29155	390	8	0	1	0	2	1	1	0	72	81	30.45	4500	8	PPG821
200191	200665	C	11/16/70	F35	68	FORD	LTD	57194	390	8	0	1	0	2	1	1	0	68	58	30.80	4000	8	PWT195
200195	200681	C	11/19/71	F35	69	FORD	TORIN	35199	390	8	0	1	0	2	1	1	0	71	82	30.10	3500	8	PWV392
200195	200682	H																					
200206	200679	C	11/18/70	F35	69	FORD	LTD	45229	390	8	0	1	0	2	1	1	0	69	62	30.40	4500	8	NDW112
200210	200787	C	12/12/70	F35	69	MERC	STAWA	25257	390	8	0	1	0	2	1	1	0	68	58	30.60	4500	8	RJJ752
200172	201194	R	3/02/71	F35	68	MERC	STAWA	52972	390	8	0	1	0	2	1	1	0	69	76	30.15	4500	8	NPS763
200060	200658	C	11/13/70	F35	69	MERC	MARQU	24334	429	8	0	1	0	4	1	1	0	69	62	30.10	4500	8	PCV892
200069	200844	C	12/19/70	F36	69	FORD	THUND	14365	429	8	0	1	0	4	1	1	0	72	70	30.50	5000	8	NTX72
200073	201184	C	3/01/71	F36	69	FORD	STAWA	22071	429	8	0	1	0	4	1	1	0	70	69	30.25	4500	8	PZD574
200094	200820	C	10/27/70	F36	68	FORD	THUND	27373	429	8	0	1	0	4	1	1	0	85	139	30.15	5000	8	PBG403
200101	200626	C	10/29/70	F36	68	FORD	THUND	46956	429	8	0	1	0	4	1	1	0	74	71	30.52	5000	8	PNJ914
200294	200707	C	11/25/70	F36	69	FORD	THUND	29763	429	8	0	1	0	4	1	1	0	70	60	30.45	5000	8	NSW838
200315	200810	C	12/15/71	F36	69	FORD	LTD	45329	429	8	0	1	0	4	1	1	0	69	62	30.25	4500	8	PWW800
200364	200794	C	12/14/70	F36	68	FORD	THUND	29414	429	8	0	1	0	4	1	1	0	68	55	30.80	5000	8	RHX899
200394	200824	C	12/17/71	F36	68	FORD	THUND	47472	429	8	0	1	0	4	1	1	0	68	54	30.55	5000	8	NRJ377
200407	200844	C	12/19/70	F36	68	FORD	THUND	21293	429	8	0	1	0	4	1	1	0	70	60	30.50	5000	8	PDP317
200414	200893	C	1/05/71	F36	68	FORD	THUND	30335	429	8	0	1	0	4	1	1	0	69	65	30.70	5000	8	NTD185
200070	201187	R	3/02/71	F36	69	FORD	STAWA	22071	429	8	0	1	0	4	1	1	0	68	64	30.15	4500	8	PZD574
200264	200727	C	12/03/70	G51	68	CHEV	CHEVE	30100	230	6	0	0	0	1	1	1	0	77	91	30.40	3500	8	NPK148
200282	200822	C	12/16/70	G51	69	CHEV	CAMAR	22934	230	6	0	1	0	1	1	1	0	72	57	30.40	3500	8	PSP89
200328	200767	C	12/10/70	G51	68	CHEV	CAMAR	57565	230	6	0	0	0	1	1	1	0	68	58	30.55	3500	8	RWV597
200328	200768	H																					
200329	200591	C	10/20/71	G51	69	CHEV	CAMAR	34831	230	6	0	0	0	1	1	1	0	76	79	30.14	3500	8	NTD137
200572	200890	C	12/23/71	G51	69	CHEV	NOVA	32495	230	6	0	0	0	1	1	1	0	68	63	30.30	3500	8	PSP629
200574	200838	C	12/18/71	G51	68	CHEV	CHEVE	32714	230	6	0	1	0	1	1	1	0	76	93	30.45	3500	8	PBJ303
200360	200845	C	12/19/71	G51	69	CHEV	NOVA	53329	230	6	0	1	0	1	1	1	0	70	60	30.50	3500	8	RFY390
200368	200817	C	12/14/71	G51	68	CHEV	NOVA	33166	230	6	0	0	0	1	1	1	0	68	55	30.40	3500	8	RCG39
200333	200901	C	1/04/71	G51	69	CHEV	CHEVE	40343	230	6	0	0	0	1	1	1	0	68	62	30.40	3500	8	PLV992
200420	200819	C	12/16/70	G51	69	CHEV	NOVA	24480	230	6	0	1	0	1	1	1	0	72	57	30.40	3500	8	PFW835
200415	200871	C	12/22/71	G51	69	CHEV	NOVA	47983	230	6	0	0	0	1	1	1	0	75	106	30.40	3500	8	NTJ193
200416	200874	C	12/22/71	G51	69	CHEV	NOVA	47774	230	6	0	0	0	1	1	1	0	68	59	30.40	3500	8	NTN196

COLD START VEHICLE INFORMATION HOUSTON PHASE II PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOM	CID	CYL	TRN	A/C	F50	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200418	200857	C	12/20/70	G51	69	CHEV	CHEVE	13992	230	6	0	1	0	1	1	1	0	69	61	30.50	3500	8	PHG333
200498	200826	R	12/17/70	G51	69	CHEV	NOVA	33162	230	6	0	0	0	1	1	1	0	68	54	30.60	3500	8	RCG39
200221	200688	C	11/23/70	G52	69	CHEV	NOVA	23626	250	6	0	1	0	1	1	1	0	69	56	30.80	3500	8	PRT895
200270	200832	C	12/16/70	G52	68	CHEV	CAMAR	69132	250	6	0	1	0	1	1	1	0	68	55	30.45	3500	8	PTL612
200289	200757	C	12/08/70	G52	69	CHEV	NOVA	35622	250	6	0	1	0	1	1	1	0	70	89	30.60	3500	8	PHS892
200292	200743	C	12/07/70	G52	69	CHEV	CHEVE	43506	250	6	0	1	0	1	1	1	0	68	54	30.81	3500	8	NFK212
200292	200743	H																					
200296	200742	C	12/07/70	G52	69	CHEV	NOVA	33934	250	6	0	1	0	1	1	1	0	68	54	30.81	3500	8	654598
200329	200771	C	12/10/70	G52	69	CHEV	NOVA	18773	250	6	0	1	0	1	1	1	0	79	88	30.50	3500	8	PRY597
200334	200779	C	12/11/70	G52	68	CHEV	CHEVE	43267	250	6	0	0	0	1	1	1	0	68	59	30.40	3500	8	RFC394
200338	200795	C	12/14/70	G52	69	CHEV	NOVA	33027	250	6	0	1	0	1	1	1	0	68	58	30.80	3500	8	PS4930
200353	200792	C	12/13/70	G52	69	CHEV	CHEVE	27936	250	6	0	1	0	1	1	1	0	68	58	30.80	3500	8	NVG539
200362	200813	C	12/16/70	G52	69	CHEV	CHEVE	34793	250	6	0	1	0	1	1	1	0	68	59	30.40	3500	8	PGD19
200369	200842	C	12/18/70	G52	69	CHEV	IMPAL	27844	250	6	0	1	0	1	1	1	0	75	70	30.40	4000	8	NPZ62
200391	200918	C	1/11/71	G52	68	CHEV	NOVA	24950	250	6	0	1	0	1	1	1	0	73	88	30.50	3500	8	PHX466
200391	200919	H																					
200369	200849	R	12/19/70	G52	69	CHEV	IMPAL	27944	250	6	0	1	0	1	1	1	0	71	62	30.50	4000	8	NPZ62
200010	200900	C	1/06/71	G53	68	CHEV	MALIB	35978	307	8	0	1	0	2	1	1	0	68	62	30.85	3500	8	PRM961
200030	200888	C	1/05/71	G53	68	CHEV	IMPAL	55593	307	8	0	1	0	2	1	1	0	68	62	30.80	4000	8	HLF334
200040	200588	C	10/20/70	G53	69	CHEV	CHEVE	26737	307	8	0	1	0	2	1	1	0	70	70	30.14	3500	8	NBJ740
200051	200584	C	10/19/70	G53	68	CHEV	CHEVE	35541	307	8	0	1	0	2	1	1	0	74	77	30.14	3500	8	NSN819
200079	200633	C	10/30/70	G53	68	CHEV	MALIB	57205	307	8	0	1	0	2	1	1	0	65	55	30.55	4000	8	PTN608
200086	200599	C	10/22/70	G53	69	CHEV	CHEVE	19081	307	8	0	1	0	2	1	1	0	74	68	30.12	3500	8	NVC889
200106	200885	C	12/31/70	G53	69	CHEV	NOVA	15672	307	8	0	1	0	2	1	1	0	69	53	30.50	3500	8	PFS591
200112	200653	C	11/02/70	G53	68	CHEV	CHEVE	29097	307	8	0	1	0	2	1	1	0	70	60	30.25	3500	8	PVH877
200126	200641	C	11/11/70	G53	69	CHEV	MALIB	27468	307	8	0	1	0	2	1	1	0	66	62	30.45	3500	8	PVC926
200148	200639	C	10/30/70	G53	69	CHEV	NOVA	18200	307	8	0	1	0	2	1	1	0	65	63	30.60	3500	8	PGF46
200156	200971	C	1/25/71	G53	68	CHEV	NOVA	38674	307	8	0	0	0	2	1	1	0	69	66	30.35	3500	8	NWS819
200171	200649	C	11/12/70	G53	68	CHEV	NOVA	35806	307	8	0	1	0	2	1	1	0	68	59	30.40	3500	8	PZN451
200171	200656	R	11/13/70	G53	68	CHEV	NOVA	35815	307	8	0	1	0	2	1	1	0	69	58	30.10	3500	8	PZN451
200009	200894	C	1/05/71	G54	68	CHEV	BELAI	33146	327	8	0	1	0	4	1	1	0	69	65	30.70	4000	8	NRD263
200036	200589	C	10/20/70	G54	68	CHEV	CHEVE	50509	327	8	0	1	0	4	1	1	0	71	73	30.14	3500	8	RKP858
200092	200606	C	10/23/70	G54	68	CHEV	IMPAL	22131	327	8	0	1	0	4	1	1	0	76	100	30.15	4000	8	NWY978
200097	200659	C	11/13/70	G54	68	CHEV	STAWA	32638	327	8	0	1	0	4	1	1	0	72	62	30.05	4500	8	NZX752
200116	200884	C	12/29/70	G54	68	CHEV	STAWA	46259	327	8	0	1	0	4	1	1	0	81	102	30.40	4500	8	NVH651
200125	200640	C	10/30/70	G54	69	CHEV	IMPAL	23411	327	8	0	1	0	4	1	1	0	65	63	30.60	4000	8	PGZ966
200143	200627	C	10/28/70	G54	68	CHEV	IMPAL	61463	327	8	0	1	0	4	1	1	0	74	71	30.52	4000	8	KDY643
200176	200819	C	12/16/70	G54	68	CHEV	MALIB	36401	327	8	0	1	0	4	1	1	0	72	57	30.40	3500	8	PGT889
200207	200776	C	12/10/70	G54	68	CHEV	IMPAL	41945	327	8	0	1	0	4	1	1	0	79	89	30.40	4000	8	NSF360
200222	200719	C	12/02/70	G54	69	CHEV	MALIB	29127	327	8	0	1	0	4	1	1	0	70	68	30.60	3500	8	RLZ98
200256	200722	C	12/02/70	G54	68	CHEV	IMPAL	30843	327	8	0	1	0	4	1	1	0	78	94	30.70	4000	8	NVC360
200176	200829	R	12/16/70	G54	68	CHEV	MALIB	36401	327	8	0	1	0	4	1	1	0	72	65	30.50	3500	8	PGT889
200004	200571	C	10/14/70	G55	69	CHEV	CAPRI	42913	350	8	0	1	0	4	1	1	0	81	70	30.41	4000	8	MWS229
200005	200572	C	10/15/70	G55	69	CHEV	CAPRI	39974	350	8	0	1	0	4	1	1	0	72	70	30.58	4000	8	RDV493
200014	200574	C	10/14/70	G55	69	CHEV	IMPAL	22056	350	8	0	1	0	4	1	1	0	74	76	30.60	4000	8	PKB261
200077	200605	C	10/23/70	G55	69	CHEV	CAPRI	20987	350	8	0	1	0	4	1	1	0	76	100	30.15	4000	8	PNX68
200078	200666	C	11/16/70	G55	69	CHEV	IMPAL	26333	350	8	0	1	0	4	1	1	0	70	55	30.80	4000	8	RGD878
200081	200579	C	10/14/70	G55	69	CHEV	KINGS	29082	350	8	0	1	0	4	1	1	0	75	79	30.50	4500	8	RCG706
200091	200603	C	10/23/70	G55	69	CHEV	IMPAL	12282	350	8	0	1	0	4	1	1	0	74	98	30.12	4000	8	PWS223
200102	200619	C	10/27/70	G55	69	CHEV	CHEVE	17189	350	8	0	1	0	4	1	1	0	84	141	30.15	3500	8	NSH527
200140	200670	C	11/17/70	G55	69	CHEV	IMPAL	39294	350	8	0	1	0	4	1	1	0	72	61	30.50	4000	8	PTV146
200195	200568	C	10/14/70	G55	69	CHEV	MALIB	29800	350	8	0	1	0	4	1	1	0	68	72	30.41	3500	8	NDV399
200253	200573	C	10/15/70	G55	69	CHEV	CAPRI	8320	350	8	0	1	0	4	1	1	0	72	70	30.60	4000	8	NZM244
200255	200746	C	12/07/70	G55	69	CHEV	KINGS	39151	350	8	0	1	0	4	1	1	0	79	87	30.70	4500	8	NPP503
200257	200701	C	11/25/70	G55	69	CHEV	IMPAL	43654	350	8	0	1	0	4	1	1	0	68	58	30.60	4000	8	NYZ75
200257	200702	H																					
200278	200569	C	10/14/70	G55	69	CHEV	IMPAL	22764	350	8	0	1	0	4	1	1	0	68	72	30.45	4000	8	PDZ290
200378	200917	C	1/11/71	G55	69	CHEV	CAPRI	54969	350	8	0	1	0	4	1	1	0	70	73	30.55	4000	8	NCB185
200379	200923	R	1/12/71	G55	69	CHEV	CAPRI	54969	350	8	0	1	0	4	1	1	0	71	96	30.60	4000	8	NCB185
200105	200698	C	11/24/70	G56	68	CHEV	MALIB	34516	396	8	0	1	0	4	1	1	0	70	63	30.80	4000	8	NMR788
200263	200862	C	12/21/70	G56	68	CHEV	CHEVE	23748	396	8	0	1	0	4	1	1	0	75	101	30.35	4000	8	NZK970
200319	200850	C	12/20/70	G56	69	CHEV	CHEVE	29630	396	8	0	1	0	4	1	1	0	70	64	30.45	4000	8	NPS354
200333	200781	C	12/11/70	G56	69	CHEV	CHEVE	21025	396	8	0	1	0	4	1	1	0	70	60	30.40	4000	8	PLV476
200342	200777	C	12/10/70	G56	69	CHEV	CHEVE	22773	396	8	0	1	0	4	1	1	0	78	90	30.40	4000	8	PPM325
200343	200882	C	12/29/70	G56	68	CHEV	CHEVE	35904	396	8	0	1	0	4	1	1	0	78	95	30.40	4000	8	PNB254
200344	200783	C	12/11/70	G56	68	CHEV	CHEVE	52398	396	8	0	1	0	4	1	1	0	70	60	30.40	4000	8	DCY629
200345	200883	C	12/29/70	G56	69	CHEV	CHEVE	32602	396	8	0	1	0	4	1	1	0	78	95	30.40	4000	8	PHG454
200354	200784	C	12/12/70	G56	68	CHEV	IMPAL	37662	396	8	0	1	0	4	1	1	0	68	58	30.60	4500	8	PK460
200368	200860	C	12/21/70	G56	68	CHEV	CAPRI	21889	396	8	0	1	0	4	1	1	0	75	101	30.35	4500	8	NZS578
200410	200907	C	1/07/71	G56	68	CHEV	CAPRI	53091	396	8	0	1	0	4	1	1	0	68	62	30.90	4500	8	PGR382
200410	200915	R	1/08/71	G56	68	CHEV	CAPRI	53091	396	8	0	1	0	4	1	1	0	68	62	30.75	4500	8	PGR382
200008	200897	C	1/06/71	G61	69	PONT	LEMAN	26112	350	8	0	1	0	2	1	1	0	68	62	30.85	4000	8	PDV245
200084	200608	C	10/23/70	G61	69	PONT	LEMAN	43094	350	8	0	1	0	2	1	1	0	78	114	30.01	4000	8	RDT127
200088	200807	C	12/15/70	G61	69	PONT	LEMAN	28043	350	8	0	1	0	2	1	1	0	68	60	30.10	4000	8	PKV807
200115	200697	C	11/24/70	G61	69	PONT	LEMAN	21937	350	8	0	1	0	2	1	1	0	68	57	31.00	3500	8	PPJ161
200159	200718	C	12/02/70	G61	69	PONT	LEMAN	41664	350	8	0	1	0	2	1	1	0	68	58	30.60	3500	8	PYH928
200167	200667	C	11/11/70	G61	69	PONT	LEMAN	14772	350	8	0	1	0	2	1	1	0	79	94	30.30	4000	8	PZM603
200178	200970	C	1/22/71	G61	69	PONT	LEMAN	46292	350	8	0	1	0	2	1	1	0	74	92	30.35	4000	8	PPF574

HOUSTON, PHASE II — PROCESSING DATE- 03/27/72

COLD CAR NO	START RUN NO	VEHICLE S	INFORMATION --DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TAN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC	NO
200199	200869	C	12/21/70	G81	68	PONT	LEMAN	18974	350	8	0	1	0	2	1	1	0	75	101	30.35	4000	8	PHN169	
200187	200862	C	11/13/70	G81	69	PONT	TEMPE	30241	350	8	0	1	0	2	1	1	0	72	71	30.00	4000	8	PTW236	
200194	200880	C	11/19/70	G81	68	PONT	LEMAN	37891	350	8	0	1	0	2	1	1	0	71	82	30.10	4000	8	NTZ960	
200179	200873	R	1/25/71	G81	68	PONT	LEMAN	46292	350	8	0	1	0	2	1	1	0	69	66	30.35	4000	8	PPF576	
200019	200581	C	10/19/70	G82	68	PONT	CATAL	31769	400	8	0	1	0	2	1	1	0	72	66	30.14	4000	8	PGL697	
200058	200666	C	11/11/70	G82	68	PONT	CATAL	41645	400	8	0	1	0	2	1	1	0	79	94	30.30	4500	8	PFM665	
200059	200590	C	10/20/70	G82	69	PONT	CATAL	44929	400	8	0	1	0	2	1	1	0	76	79	30.14	4500	8	MT7291	
200090	200621	C	10/27/70	G82	69	PONT	EXECU	30772	400	8	0	1	0	2	1	1	0	87	143	30.15	4500	8	NXC67	
200094	200539	C	10/22/70	G82	68	PONT	CATAL	34437	400	8	0	1	0	2	1	1	0	72	90	30.12	4000	8	PFC865	
200103	200631	C	10/29/70	G82	69	PONT	CATAL	21538	400	8	0	1	0	2	1	1	0	66	53	30.65	4500	8	NSC278	
200117	200632	C	10/29/70	G82	69	PONT	CATAL	23110	400	8	0	1	0	2	1	1	0	66	53	30.65	4500	8	PLR24	
200120	200635	C	10/30/70	G82	69	PONT	EXECU	28174	400	8	0	1	0	2	1	1	0	65	55	30.55	4500	8	NYD187	
200144	200642	C	11/11/70	G82	69	PONT	CATAL	31245	400	8	0	1	0	2	1	1	0	66	62	30.48	4500	8	PRK257	
200167	200830	C	10/29/70	G82	69	PONT	CATAL	19383	400	8	0	1	0	2	1	1	0	62	44	30.62	4500	8	R9V524	
200187	201205	C	3/03/71	G82	69	PONT	EXECU	31780	400	8	0	1	0	2	1	1	0	70	24	30.70	4500	8	NTC589	
200247	200737	C	12/04/70	G82	68	PONT	CATAL	34570	400	8	0	1	0	2	1	1	0	77	91	30.65	4000	8	PAG171	
200247	200738	R	12/05/70	G82	68	PONT	CATAL	34570	400	8	0	1	0	2	1	1	0	68	58	30.60	4000	8	PAG171	
200174	200657	C	11/13/70	G83	69	PONT	BONNE	26168	428	8	0	1	0	4	1	1	0	69	58	30.10	4500	8	PD513	
200205	200736	C	12/04/70	G83	69	PONT	BONNE	47108	429	8	0	1	0	4	1	1	0	77	86	30.70	4500	8	LJK123	
200227	200844	C	11/11/70	G83	68	PONT	BONNE	60331	428	8	0	1	0	4	1	1	0	78	85	30.40	4500	8	NYD62	
200275	200788	C	12/12/70	G83	69	PONT	GRAND	20665	428	8	0	1	0	4	1	1	0	70	64	30.60	4000	8	PHN602	
200312	200765	C	12/09/70	G83	69	PONT	BONNE	55858	428	8	0	1	0	4	1	1	0	78	90	30.55	4500	8	NZN10	
200365	200800	C	12/14/70	G83	69	PONT	BONNE	17263	428	8	0	1	0	4	1	1	0	78	74	30.70	4500	8	PCY22	
200367	200802	C	12/15/70	G83	69	PONT	BONNE	42336	428	8	0	1	0	4	1	1	0	68	59	30.30	4500	8	PNN715	
200404	200873	C	11/17/70	G83	69	PONT	BONNE	40948	428	8	0	1	0	4	1	1	0	71	54	30.50	4500	8	NCG69	
200406	200841	C	12/18/70	G83	69	PONT	BONNE	31932	428	8	0	1	0	4	1	1	0	77	92	30.40	4500	8	NKD82	
200408	200846	C	12/19/70	G83	69	PONT	BONNE	35020	428	8	0	1	0	4	1	1	0	71	67	30.50	5000	8	NKJ686	
200413	200850	C	12/19/70	G83	69	PONT	BONNE	43350	428	8	0	1	0	4	1	1	0	72	61	30.50	4500	8	NYV268	
200417	200875	C	12/22/70	G83	69	PONT	BONNE	23201	428	8	0	1	0	4	1	1	0	68	64	30.20	4500	8	RBD998	
200406	200853	R	12/19/70	G83	69	PONT	BONNE	31932	428	8	0	1	0	4	1	1	0	78	95	30.45	4500	8	NXD82	
200027	200602	C	10/22/70	G86	68	OLDS	CUTLA	37472	350	8	0	1	0	2	1	1	0	77	93	30.12	4000	8	PFK208	
200037	200587	C	10/20/70	G86	69	OLDS	CUTLA	36696	350	8	0	1	0	2	1	1	0	70	70	30.14	4000	8	PJL656	
200041	200597	C	10/21/70	G86	68	OLDS	CUTLA	31121	350	8	0	1	0	2	1	1	0	79	95	30.14	4000	8	PZF368	
200063	200607	C	10/23/70	G86	68	OLDS	EIGHT	19070	350	8	0	1	0	2	1	1	0	76	100	30.14	4500	8	RCY450	
200082	200604	C	10/23/70	G86	68	OLDS	CUTLA	23559	350	8	0	1	0	2	1	1	0	74	98	30.12	4000	8	SHARNE	
200093	200643	C	11/11/70	G86	69	OLDS	CUTLA	18094	350	8	0	1	0	2	1	1	0	71	76	30.45	4000	8	NLY498	
230146	200972	C	1/29/71	G86	69	OLDS	F-85	26003	350	8	0	1	0	2	1	1	0	68	59	30.35	3500	8	R3J931	
200214	200693	C	11/24/70	G86	68	OLDS	CUTLA	38747	350	8	0	1	0	2	1	1	0	68	57	31.00	4000	8	PTF356	
200225	200735	C	12/04/70	G86	68	OLDS	CUTLA	32551	350	8	0	1	0	2	1	1	0	78	89	30.65	4000	8	DARB	
200232	200740	C	12/05/70	G86	69	OLDS	CUTLA	22346	350	8	0	1	0	2	1	1	0	77	86	30.65	3500	8	PVK408	
200244	200694	C	11/24/70	G86	69	OLDS	CUTLA	12609	350	8	0	1	0	2	1	1	0	68	57	31.00	3500	8	NWG276	
230245	200710	C	12/01/70	G86	69	OLDS	CUTLA	43191	350	8	0	1	0	2	1	1	0	71	58	30.50	4000	8	PHK92	
230245	200711	H																						
200272	200730	C	12/03/70	G86	68	OLDS	CUTLA	32843	350	8	0	1	0	2	1	1	0	77	91	30.60	4000	8	NWD383	
230273	200839	C	12/18/70	G86	68	OLDS	DELMO	31999	350	8	0	1	0	2	1	1	0	76	93	30.40	4500	8	NTZ182	
200277	200733	R	12/04/70	G86	68	OLDS	CUTLA	32843	350	8	0	1	0	2	1	1	0	77	91	30.70	4000	8	NWD383	
200083	200601	C	10/22/70	G87	68	OLDS	NINET	46104	455	8	0	1	0	4	1	1	0	77	93	30.12	4500	8	PPN139	
230145	200717	C	12/01/70	G87	69	OLDS	NINET	26563	455	8	0	1	0	4	1	1	0	78	90	30.50	4500	8	NWB541	
200199	200695	C	11/24/70	G87	68	OLDS	NINET	36994	455	8	0	1	0	4	1	1	0	70	58	31.00	4500	8	RBG624	
200199	200696	H																						
200220	200706	C	11/25/70	G87	69	OLDS	NINET	59983	455	8	0	1	0	4	1	1	0	70	60	30.30	4500	8	NYF123	
200228	200720	C	12/02/70	G87	68	OLDS	NINET	31237	455	8	0	1	0	4	1	1	0	78	94	30.70	4500	8	RDH748	
200228	200721	H																						
200259	201180	C	2/26/71	G87	69	OLDS	NINET	21150	455	8	0	1	0	4	1	1	0	79	95	30.10	4500	8	RDN377	
200277	200803	C	12/15/70	G87	69	OLDS	NINET	16346	455	8	0	1	0	4	1	1	0	68	59	30.25	4500	8	NVF53	
200305	200745	C	12/12/70	G87	68	OLDS	NINET	39411	455	8	0	1	0	4	1	1	0	69	53	30.60	4500	8	PFW792	
200405	200859	C	12/21/70	G87	68	OLDS	NINET	41180	455	8	0	1	0	4	1	1	0	68	39	30.40	4500	8	NKN307	
200420	200868	C	12/21/70	G87	69	OLDS	NINET	21909	455	8	0	1	0	4	1	1	0	79	105	30.30	4500	8	PDL248	
200258	201181	R	2/27/71	G87	69	OLDS	NINET	21158	455	8	0	1	0	4	1	1	0	69	66	30.45	4500	8	RDN377	
200053	200889	C	1/05/71	G71	68	BUIC	LESAB	48094	350	8	0	1	0	4	1	1	0	68	62	30.80	4500	8	NBS	
200065	200593	C	10/21/70	G71	69	BUIC	LESAB	29994	350	8	0	1	0	4	1	1	0	73	65	30.14	4500	8	NWT256	
200132	200625	C	10/28/70	G71	68	BUIC	LESAB	42340	350	8	0	1	0	4	1	1	0	75	65	30.52	4500	8	PHK150	
200303	200908	C	1/07/71	G71	68	BUIC	SKYLA	45000	350	8	0	1	0	4	1	1	0	68	62	30.85	4000	8	PFP776	
200318	200782	C	12/11/70	G71	68	BUIC	GRAND	28311	350	8	0	1	0	4	1	1	0	70	60	30.40	4000	8	PSK58	
200331	200759	C	12/09/70	G71	69	BUIC	LESAB	30510	350	8	0	1	0	4	1	1	0	69	53	30.60	4500	8	PSK494	
200349	200798	C	12/14/70	G71	68	BUIC	LESAB	42297	350	8	0	1	0	4	1	1	0	68	58	30.80	4500	8	PGZ498	
200340	200916	C	1/11/71	G71	68	BUIC	SKYLA	58742	350	8	0	1	0	4	1	1	0	69	58	30.55	4000	8	PVN275	
200377	200852	C	12/19/70	G71	68	BUIC	LESAB	30000	350	8	0	1	0	4	1	1	0	78	95	30.45	4500	8	PSW623	
200379	200835	C	12/18/70	G71	68	BUIC	SKYLA	50443	350	8	0	1	0	4	1	1	0	69	53	30.45	4000	8	NPN664	
200387	200812	C	12/15/70	G71	69	BUIC	SKYLA	12438	350	8	0	1	0	4	1	1	0	70	61	30.10	4000	8	NWS908	
200390	200922	C	1/12/71	G71	68	BUIC	SKYLA	50335	350	8	0	1	0	4	1	1	0	68	67	30.55	4000	8	PKG724	
200393	200911	R	1/08/71	G71	68	BUIC	SKYLA	40000	350	8	0	1	0	4	1	1	0	68	62	30.75	4000	8	RFP776	
200393	200925	R	1/13/71	G71	68	BUIC	SKYLA	50335	350	8	0	1	0	4	1	1	0	70	87	30.55	4000	8	PKG724	
200042	200890	C	1/05/71	G72	69	BUIC	WILDC	25233	430	8	0	1	0	4	1	1	0	68	62	30.80	4500	8	PTW363	
200044	200690	C	10/22/70	G72	68	BUIC	WILDC	62704	430	8	0	1	0	4	1	1	0	77	93	30.12	4500	8	PCC676	
200129	200914	C	1/08/71	G72	69	BUIC	WILDC	30090	430	8	0	1	0	4	1	1	0	68	62	30.75	4500	8	NYH292	
200133	200834	C	10/23/70	G72	68	BUIC	WILDC	43455	430	8	0	1	0	4	1	1	0	70	55	30.60	4500	8	NV467	
200186	200879	C	11/17/70	G72	69	BUIC	ELECT	23074	430	8	0	1	0	4	1	1	0	77	77	30.35	4500	8	PFX250	
200188	200880	C	11/13/70	G72	68	BUIC	ELECT	27570	430	8	0	1	0	4	1	1	0	72	62	30.05	4500	8	PVZ911	
200197	200877	C	11/17/70	G72	69	BUIC	WILDC	22806	430	8	0	1	0	4	1	1	0	70	64	30.50	4500	8	PJV822	

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	PSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200212	200700	C	11/25/70	G72	69	BUIC	WILDC	7077	430	8	0	1	0	4	1	1	0	68	58	30.60	4500	8	PJR133
200242	200723	C	11/25/70	G72	69	BUIC	WILDC	14344	430	8	0	1	0	4	1	1	0	70	59	30.60	4500	8	RJR
200247	200714	C	12/01/70	G72	69	BUIC	WILDC	9217	430	8	0	1	0	4	1	1	0	79	99	30.50	4500	8	NKP499
200287	200886	C	12/31/70	G72	69	BUIC	ELECT	17756	430	8	0	1	0	4	1	1	0	69	53	30.50	4500	8	PVX54
200295	200887	R	1/04/71	G72	69	BUIC	ELECT	17756	430	8	0	1	0	4	1	1	0	68	46	30.45	4500	8	PVX5H
200142	200624	C	10/28/70	G76	69	CADI	DEVIL	12234	472	8	0	1	0	4	1	2	0	74	62	30.52	5000	8	NT4672
200154	200655	C	11/12/70	G76	69	CADI	DEVIL	11712	472	8	0	1	0	4	1	2	0	70	56	30.25	5000	8	PTV535
200249	200881	C	12/23/70	G76	69	CADI	DEVIL	12543	472	8	0	1	0	4	1	2	0	68	63	30.30	5000	8	NRF176
200311	200861	C	12/21/70	G76	69	CADI	CALAI	39679	472	8	0	1	0	4	1	2	0	75	100	30.40	5000	8	PVE113
200313	201150	C	12/19/70	G76	69	CADI	DEVIL	20742	472	8	0	1	0	4	1	2	0	72	90	30.35	5000	8	NZN15
200325	200764	C	12/09/70	G76	69	CADI	DEVIL	32778	472	8	0	1	0	4	1	2	0	78	89	30.60	5000	8	PZR243
200330	200905	C	1/07/71	G76	68	CADI	DEVIL	73049	472	8	0	1	0	4	1	2	0	68	62	30.80	5000	8	NYK568
200330	200906	H																					
200340	200816	C	12/16/70	G76	68	CADI	DEVIL	32877	472	8	0	1	0	4	1	2	0	68	59	30.45	5000	8	NRP93
200341	200869	C	12/22/70	G76	69	CADI	DEVIL	30574	472	8	0	1	0	4	1	2	0	74	109	30.35	5000	8	NWJ813
200341	200870	H																					
200365	200879	C	12/23/70	G76	69	CADI	DEVIL	7934	472	8	0	1	0	4	1	2	0	68	63	30.30	5000	8	PWD97
200381	200871	C	12/22/70	G76	69	CADI	DEVIL	32244	472	8	0	1	0	4	1	2	0	74	108	30.35	5000	8	PVD960
200381	200872	H																					
200384	201195	C	3/02/71	G76	69	CADI	DEVIL	27589	472	8	0	1	0	4	1	2	0	69	76	30.15	5000	8	RHK183
200384	201199	R	3/03/71	G76	69	CADI	DEVIL	27589	472	8	0	1	0	4	1	2	0	69	76	30.10	5000	8	RHK183
200016	200576	C	10/16/70	V81	69	VOLK	STANC	11064	91	4	4	1	0	1	1	1	0	70	59	30.75	2000	4	PSG545
200031	200614	C	10/26/70	V81	68	VOLK	STANC	45715	91	4	4	1	0	1	1	1	0	84	115	30.15	2000	4	NZK920
200046	200585	C	10/19/70	V81	69	VOLK	STANC	23173	91	4	4	0	0	1	1	1	0	74	77	30.14	2000	4	NMZ932
200047	200611	C	10/26/70	V81	68	VOLK	STANC	41997	91	4	4	0	0	1	1	1	0	78	107	30.20	2000	4	RJG543
200049	200592	C	10/19/70	V81	68	VOLK	STANC	38880	91	4	4	1	0	1	1	1	0	64	66	30.14	2000	4	RBF275
200066	200615	C	10/26/70	V81	69	VOLK	STANC	37636	91	4	4	1	0	1	1	1	0	84	116	30.12	2000	4	NGN988
200067	200592	C	10/21/70	V81	69	VOLK	STANC	29010	91	4	4	1	0	1	1	1	0	71	73	30.14	2000	4	BRL511
200089	200598	C	10/22/70	V81	69	VOLK	STANC	43970	91	4	4	0	0	1	1	1	0	72	90	30.12	2000	4	RDK335
200137	200663	C	11/13/70	V81	69	VOLK	STANC	50667	91	4	4	0	0	1	1	1	0	72	71	30.00	2000	4	NMS337
200177	200724	C	12/02/70	V81	68	VOLK	STANC	25725	91	4	0	0	0	1	1	1	0	78	95	30.60	2000	4	RJP93
200188	200732	C	12/04/70	V81	68	VOLK	STANC	21414	91	4	4	0	0	1	1	1	0	74	90	30.70	2000	4	NCS995
230421	200856	C	12/20/70	V81	69	VOLK	STANC	20683	91	4	4	0	0	1	1	1	0	69	61	30.50	2000	4	PKW15
200177	200728	R	12/03/70	V81	68	VOLK	STANC	25725	91	4	0	0	0	1	1	1	0	77	91	30.60	2000	4	RJP93
200115	200965	C	1/22/71	V82	69	VOLK	FTBK	27511	97	4	4	1	1	0	1	1	0	77	97	30.50	2500	4	PV 858
200151	200647	C	11/20/70	V82	68	VOLK	SQBK	26557	97	4	4	1	1	0	1	1	0	74	77	30.10	2500	4	PS843
200152	200683	C	11/19/70	V82	68	VOLK	SQBK	61336	97	4	4	0	1	0	1	1	0	79	94	30.50	2500	4	PVP893
200229	200715	C	12/01/70	V82	69	VOLK	SQBK	59162	97	4	4	0	1	0	1	1	0	70	64	30.55	2500	4	PRJ229
200230	200749	C	12/12/70	V82	69	VOLK	SQBK	27576	97	4	4	0	1	0	1	1	0	69	61	30.50	2500	4	NDY676
200243	200854	C	12/20/70	V82	68	VOLK	SQBK	17641	97	4	4	0	1	0	1	1	0	79	87	30.80	2500	4	RKW207
200261	200747	C	12/17/70	V82	68	VOLK	SQBK	11318	97	4	4	1	1	0	1	1	0	68	63	30.55	2500	4	PRZ857
200299	200769	C	12/10/70	V82	69	VOLK	FTBK	21253	97	4	4	1	1	0	1	1	0	68	64	30.25	2500	4	NTP999
200376	201192	C	3/01/71	V82	68	VOLK	FTBK	21253	97	4	4	1	1	0	1	1	0	68	73	30.15	2500	4	PVH793
200376	201188	R	3/02/71	V82	68	VOLK	FTBK	21253	97	4	4	1	1	0	1	1	0	68	73	30.15	2500	4	PVH793

TABLE A-6

Houston

Phase III

1.0<

COLD START VEHICLE INFORMATION HOUSTO... PHASE III PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMF	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200262	301479	C	4/28/71	A01	69	AMER	HAMBL	32532	232	6	0	1	0	1	1	1	0	79	124	30.10	3000	8	HGX725
200271	301503	C	5/03/71	A01	68	AMER	JAVEL	57430	232	6	3	1	0	1	1	1	0	75	95	30.50	3000	8	SGG99
200297	301496	C	4/30/71	A01	68	AMER	JAVEL	45442	232	6	3	0	0	1	1	1	0	73	94	30.25	3000	8	KWL158
200314	301841	C	8/06/71	A01	68	AMER	JAVEL	43689	232	6	3	0	0	1	1	1	0	83	141	30.52	3000	8	RDN460
200314	301842	H																					
200332	301475	C	4/28/71	A01	69	AMER	JAVEL	38612	232	6	0	1	0	1	1	1	0	76	117	30.10	3000	8	PSY119
200347	301673	C	6/11/71	A01	68	AMER	RAMBL	54316	232	6	3	1	0	1	1	1	0	80	115	30.45	3000	8	PJP440
200351	301746	C	6/29/71	A01	69	AMER	AMBAS	17600	232	6	0	1	0	1	1	1	0	81	119	30.45	3500	8	PKH338
200356	301722	C	6/22/71	A01	69	AMER	JAVEL	17435	232	6	3	1	0	1	1	1	0	84	139	30.50	3000	8	PFS552
200359	301528	C	5/07/71	A01	68	AMER	REBEL	24749	232	6	0	1	0	1	1	1	0	70	83	30.30	3500	8	PTM490
200373	301505	C	5/03/71	A01	68	AMER	AMBAS	33176	232	6	0	1	0	1	1	1	0	76	104	30.50	3500	8	PBF140
200297	301501	R	5/03/71	A01	68	AMER	JAVEL	45442	232	6	3	0	0	1	1	1	0	73	93	30.50	3000	8	KWL158
200056	301861	C	9/08/71	C11	68	DODG	DART	29866	225	6	0	1	0	1	1	1	0	86	142	30.55	3000	8	PFX808
200123	301672	C	6/11/71	C11	69	PLYM	VALIA	24653	225	6	3	1	0	1	1	1	C	80	115	30.45	3000	8	PDP773
200181	301425	C	4/19/71	C11	69	PLYM	VALIA	18788	224	6	0	1	0	1	1	1	0	80	116	30.20	3000	8	PXX944
200218	301383	C	4/08/71	C11	68	PLYM	VALIA	64436	225	6	3	1	0	1	1	1	0	70	68	30.70	3000	8	PTW63
200234	301366	C	4/08/71	C11	69	DODG	DART	28735	225	6	0	1	0	1	1	1	0	71	71	30.75	3000	8	RCM432
200259	301649	C	6/04/71	C11	68	DODG	DART	47260	225	6	0	1	0	1	1	1	0	80	139	30.65	3000	8	PSP949
200294	301654	C	6/07/71	C11	68	DODG	DART	79087	225	6	0	1	0	1	1	1	0	79	116	30.40	3000	8	PRH702
200310	301650	C	6/04/71	C11	69	PLYM	VALIA	28587	225	6	0	1	0	1	1	1	0	80	139	30.65	3500	9	RXH347
200317	301847	C	8/07/71	C11	68	DODG	DART	20722	225	6	0	1	0	1	1	1	0	78	106	30.51	3000	8	PWF999
200317	301856	H																					
200321	301561	C	5/13/71	C11	69	DODG	DART	26592	225	6	0	1	0	1	1	1	0	73	88	30.35	3000	8	PVJ514
200317	301855	R	8/09/71	C11	68	DODG	DART	20722	225	6	0	1	0	1	1	1	0	78	106	30.51	3000	8	PWF999
200013	301377	C	4/07/71	C12	69	DODG	CHARG	26754	318	8	0	1	0	2	1	1	C	71	57	30.90	3500	8	E93872
200015	301627	C	5/28/71	C12	68	DODG	CORON	50375	318	8	0	1	0	2	1	1	0	76	104	30.45	3500	8	NVX157
200013	301391	C	4/13/71	C12	69	DODG	POLAR	92212	318	8	0	1	0	2	1	1	0	73	73	30.65	4000	8	PNT832
200025	301775	C	7/17/71	C12	69	DODG	CHARG	19426	318	8	0	1	0	2	1	1	0	85	124	30.55	3500	8	RLP507
200025	301776	C																					
200038	301698	C	6/15/71	C12	69	PLYM	SUBUR	36517	318	8	0	1	0	2	1	1	0	81	120	30.25	4500	8	NYW723
200073	301616	C	5/27/71	C12	69	PLYM	FURY	35384	318	8	0	1	0	2	1	1	0	75	117	30.46	4000	8	RBW346
200095	301683	C	6/14/71	C12	69	PLYM	FURY	15311	318	8	0	1	0	2	1	1	0	81	120	30.30	4000	8	RND502
200099	301565	C	5/14/71	C12	69	PLYM	FURY	29772	318	8	0	1	0	2	1	1	0	73	93	30.40	4000	8	PTA15
200108	301527	C	5/06/71	C12	68	PLYM	FURY	38181	318	8	0	1	0	2	1	1	0	76	117	30.10	4000	8	PKM763
200110	301676	C	6/14/71	C12	68	PLYM	FURY	62232	318	8	0	1	0	2	1	1	0	76	110	30.30	4000	8	RTT354
200110	301677	H																					
200111	301647	C	6/04/71	C12	69	PLYM	STAWA	47239	318	8	0	1	0	2	1	1	0	77	125	30.65	4000	8	RZW307
200169	301691	C	6/15/71	C12	69	DODG	CORON	45459	318	8	0	1	0	2	1	1	C	81	120	30.25	3500	8	RJV226
200108	301533	R	5/07/71	C12	68	PLYM	FURY	38181	318	9	0	1	0	2	1	1	0	83	122	30.35	4000	3	PKM763
200169	301655	R	6/16/71	C12	69	DODG	CORON	45459	318	8	0	1	0	2	1	1	0	82	130	30.35	3500	8	RJV226
200147	301529	C	5/07/71	C13	69	PLYM	SATEL	41907	383	8	0	1	0	2	1	1	0	82	124	30.35	4000	8	PNT529
200158	301531	C	5/07/71	C13	69	CHRY	NEWPO	68548	383	8	0	1	0	2	1	1	0	83	129	30.35	4500	8	PWH646
200162	301697	C	6/15/71	C13	69	PLYM	FURY	34550	383	8	0	1	0	2	1	1	0	75	106	30.25	4000	8	RTW534
200194	301545	C	5/11/71	C13	69	PLYM	FURY	40483	383	8	0	1	0	2	1	1	0	75	101	30.30	4000	8	PVL664
200201	301620	C	5/27/71	C13	69	CHRY	NEWPO	70633	383	8	0	1	0	2	1	1	0	77	125	30.52	4500	8	NSD377
200201	301621	H																					
200204	301533	C	6/02/71	C13	69	CHRY	NEWPO	42467	383	8	0	1	0	2	1	1	0	79	122	30.48	4500	8	RTY89
200216	301710	C	6/21/71	C13	68	DODG	CHARG	22928	383	8	0	1	0	2	1	1	0	77	119	30.50	3500	8	PVT974
200217	301695	C	6/16/71	C13	68	PLYM	STAWA	79078	383	8	0	1	0	2	1	1	0	82	130	30.35	4500	8	PNW954
200194	301549	R	5/12/71	C13	69	PLYM	FURY	40483	383	8	0	1	0	2	1	1	0	73	99	30.30	4000	8	PVL664
200113	301920	C	8/21/71	C14	68	CHRY	IMPER	27733	440	8	0	1	0	4	1	1	0	84	146	30.50	5500	8	PTG52
200127	301689	C	6/15/71	C14	69	CHRY	300	28539	440	8	0	1	0	4	1	1	0	81	120	30.25	4500	8	RWD312
200149	301724	C	6/23/71	C14	68	CHRY	300	67435	440	8	0	1	0	4	1	1	0	79	122	30.45	4500	8	RRC154
200190	301615	C	5/27/71	C14	68	CHRY	NEWYO	39935	440	8	0	1	0	4	1	1	0	75	117	30.46	4500	9	PHR270
200224	301659	C	6/08/71	C14	69	DODG	CHARG	36510	440	8	0	1	0	4	1	1	0	77	114	30.45	4000	8	RHJ819
200246	301534	C	5/07/71	C14	68	CHRY	300	29285	440	8	0	1	0	4	1	1	0	84	127	30.35	4500	8	PGP247
200266	301640	C	6/03/71	C14	68	CHRY	300	65441	440	8	0	1	0	4	1	1	0	75	116	30.60	4500	8	RRL679
200285	301736	C	6/25/71	C14	68	DODG	CHARG	57955	440	8	0	1	0	4	1	1	0	83	134	30.50	4000	9	PSH637
200307	301764	C	7/12/71	C14	68	DODG	CHARG	67945	440	8	0	1	0	4	1	1	0	84	126	30.55	4000	8	[illegible]WX394
200307	301765	H																					
200316	301681	C	6/14/71	C14	69	CHRY	300	11044	440	8	0	1	0	4	1	1	0	78	113	30.30	4500	8	PL3663
200350	301532	C	5/07/71	C14	68	CHRY	300	37505	440	8	0	1	0	4	1	1	0	83	122	30.35	4500	8	RFD176
200246	301540	R	5/10/71	C14	68	CHRY	300	29285	440	8	0	1	0	4	1	1	0	79	111	30.25	4500	8	PGP247
200028	301690	C	6/14/71	F31	68	FORD	FALCO	41015	200	6	0	1	0	1	1	1	0	81	120	30.25	3000	8	PMN626
200075	301685	C	6/15/71	F31	68	FORD	MUSTA	57285	200	6	0	1	0	1	1	1	0	75	106	30.25	3000	8	PRV875
200193	301701	C	6/17/71	F31	69	FORD	MUSTA	27000	200	6	0	1	0	1	1	1	0	82	130	30.40	3000	8	PFV80
200193	301702	H																					
200235	301698	C	6/17/71	F31	68	FORD	FALCO	24793	200	6	0	1	0	1	1	1	0	77	114	30.40	3000	8	RXT112
200235	301699	H																					
200293	301757	C	7/28/71	F31	69	FORD	MUSTA	29882	200	6	0	1	0	1	1	1	0	79	116	30.50	3500	8	RDH479
200357	301686	C	6/15/71	F31	69	FORD	MUSTA	30471	200	6	3	0	0	1	1	1	0	75	106	30.25	3500	8	PKP128
200370	301758	C	7/08/71	F31	69	FORD	MUSTA	39231	200	6	0	1	0	1	1	1	0	80	120	30.50	3000	8	HGC428
200373	301759	H																					
200382	301857	C	8/09/71	F31	68	FORD	FAIRL	37975	200	6	0	1	0	1	1	1	0	78	106	30.50	3500	8	HWW224
200396	301703	C	6/17/71	F31	69	FORD	FALCO	34087	200	6	3	0	0	1	1	1	0	82	130	30.40	3000	8	PZX45
200412	301769	C	7/16/71	F31	69	FORD	FALCO	23959	200	6	0	1	0	1	1	1	0	80	133	30.45	3000	8	PR7579
200028	301692	R	6/16/71	F31	68	FORD	FALCO	41015	200	6	0	1	0	1	1	1	0	77	108	30.35	3000	8	PMN626
200263	301567	C	5/14/71	F32	70	FORD	MAVER	22627	201	6	0	1	0	1	1	1	0	74	91	30.40	3000	8	PLT273
200216	301812	C	8/02/71	F32	70	FORD	MAVER	44692	201	6	3	1	0	1	1	1	0	80	103	30.45	3000	8	PYX626
200239	301798	C	6/18/71	F32	70	FORD	MAVER	45803	200	6	3	0	0	1	1	1	0	84	137	30.45	3000	8	HWK93

COLD START VEHICLE INFORMATION HOUSTON, PHASE III PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMT	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200322	301709	C	6/21/71	F32	70	FORD	MAVER	14392	201	6	3	1	0	1	1	1	0	76	121	30.52	3000	8	RDH233
200324	301779	C	7/19/71	F32	70	FORD	MAVER	54530	200	6	3	1	0	1	1	1	0	82	123	30.51	3000	8	PVS938
200327	301767	C	7/13/71	F32	70	FORD	MAVER	25726	201	6	0	0	0	1	1	1	0	80	126	30.55	3000	8	RLP226
200339	301421	C	4/19/71	F32	70	FORD	MAVER	26482	201	6	0	1	0	1	1	1	0	73	104	30.20	3000	8	RRD693
200375	301630	C	8/01/71	F32	70	FORD	MAVER	23965	200	6	3	1	0	1	1	1	0	74	102	30.35	3000	8	RRL728
200290	301715	R	6/21/71	F32	70	FORD	MAVER	45803	200	6	3	0	0	1	1	1	0	84	139	30.55	3000	8	HMK83
200001	301663	C	6/09/71	F33	68	FORD	GALAX	57330	302	8	0	1	0	2	1	1	0	76	110	30.40	4000	8	PHG989
200024	301393	C	4/13/71	F33	69	FORD	TORIN	33539	302	8	0	1	0	2	1	1	0	74	76	30.60	4000	8	PXW809
200029	301392	C	4/13/71	F33	69	FORD	RANCH	36779	302	8	3	0	0	2	1	1	0	73	73	30.65	4500	8	PGH896
200104	301657	C	6/08/71	F33	69	FORD	MUSTA	43414	302	8	0	1	0	2	1	1	0	76	115	30.45	3500	8	RTS269
200121	301870	C	8/11/71	F33	68	FORD	GALAX	69413	302	8	0	1	0	2	1	1	0	82	136	30.50	4000	8	RNC583
200134	301742	C	6/28/71	F33	68	FORD	STAWA	15370	302	8	0	1	0	2	1	1	0	83	135	30.40	4000	8	RPY575
200211	301461	C	6/08/71	F33	69	MERC	COUGA	54796	302	8	0	1	0	2	1	1	0	85	151	30.45	3500	8	RLD948
200226	301720	C	6/22/71	F33	69	FORD	FAIRL	38749	302	8	0	1	0	2	1	1	0	83	128	30.50	3500	8	HRG806
200211	301665	R	6/09/71	F33	68	MERC	COUGA	54796	302	8	0	1	0	2	1	1	0	80	121	30.40	3500	8	RLD948
200057	301727	C	6/23/71	F34	69	FORD	FAIRL	40451	351	8	0	1	0	2	1	1	0	81	119	30.50	3500	8	PRZ253
200213	301895	C	8/17/71	F34	69	FORD	GALAX	26956	351	8	0	1	0	2	1	1	0	82	149	30.50	4500	8	PKL963
200231	301639	C	6/03/71	F34	69	FORD	MUSTA	20129	351	8	3	1	0	2	1	1	0	75	117	30.50	3500	8	PDH119
200236	301551	C	5/12/71	F34	69	FORD	STAWA	49163	351	8	0	1	0	2	1	1	0	75	106	30.30	4000	8	PHZ611
200249	301704	C	6/13/71	F34	69	FORD	LTD	37807	351	8	0	1	0	2	1	1	0	81	125	30.45	4000	8	RBX647
200260	301662	C	6/09/71	F34	69	FORD	TORIN	23780	351	8	0	1	0	2	1	1	0	76	110	30.40	3500	8	RJY128
200287	301826	C	8/04/71	F34	69	FORD	LTD	24536	351	8	0	1	0	2	1	1	0	77	125	30.50	4500	8	PSV106
200291	301725	C	6/23/71	F34	69	FORD	LTD	38570	351	8	0	1	0	2	1	1	0	80	121	30.45	4500	8	PVX722
200291	301726	H																					
200308	301674	C	6/11/71	F34	69	FORD	MUSTA	21513	351	8	0	1	0	2	1	1	0	81	113	30.50	3500	8	PLH264
200311	301664	C	6/09/71	F34	69	FORD	MUSTA	29999	351	8	0	1	0	2	1	1	0	78	118	30.40	3500	8	PBJ179
200311	301670	R	6/10/71	F34	69	FORD	MUSTA	29998	351	8	0	1	0	2	1	1	0	80	127	30.40	3500	8	PBJ179
200061	301574	C	5/17/71	F35	69	FORD	GALAX	47341	390	8	0	1	0	2	1	1	0	77	108	30.35	4000	8	RYK409
200099	301752	C	7/01/71	F35	69	FORD	LTD	36289	390	8	0	1	0	2	1	1	0	80	133	30.50	4000	8	PFB15
200139	301739	C	6/28/71	F35	68	FORD	STAWA	43917	390	8	0	1	0	2	1	1	0	77	114	30.40	4500	8	RFW156
200153	301509	C	5/04/71	F35	69	FORD	COUNT	28636	390	8	0	1	0	2	1	1	0	75	100	30.50	4500	8	RGT505
200170	301762	C	7/09/71	F35	68	FORD	COUNT	62152	390	8	0	1	0	2	1	1	0	83	115	30.55	4500	8	RLP227
200170	301763	H																					
200175	301543	C	5/11/71	F35	69	FORD	COUNT	41134	390	8	0	1	0	2	1	1	0	72	95	30.25	4500	8	PKM372
200190	301700	C	6/17/71	F35	69	FORD	XL	39620	390	8	0	1	0	2	1	1	0	77	114	30.40	4500	8	PGW208
200191	301738	C	6/28/71	F35	68	FORD	LTD	71137	390	8	0	1	0	2	1	1	0	77	114	30.40	4000	8	PHT965
200195	301713	C	6/21/71	F35	68	FORD	TORIN	47301	390	8	0	1	0	2	1	1	0	81	137	30.55	3500	8	RJX464
200206	301753	C	7/01/71	F35	69	FORD	LTD	58183	390	8	0	1	0	2	1	1	0	85	112	30.48	4500	8	NVT725
200153	301517	R	5/05/71	F35	69	FORD	COUNT	28636	390	8	0	1	0	2	1	1	0	73	99	30.20	4500	8	RGT505
200060	301547	C	5/11/71	F36	69	MERC	MARQU	36715	429	8	0	1	0	4	1	1	0	68	87	30.20	4500	8	RXK190
200096	301935	C	9/25/71	F36	68	FORD	THUND	35439	429	8	0	1	0	4	1	1	0	86	164	30.45	5000	8	PJZ30
200101	301545	C	5/11/71	F36	68	FORD	THUND	54863	429	8	0	1	0	4	1	1	0	70	93	30.25	5000	8	PXL266
200254	301705	C	6/18/71	F36	69	FORD	THUND	36299	429	8	0	1	0	4	1	1	0	81	125	30.45	5000	8	RGD807
200394	301735	C	6/25/71	F36	68	FORD	THUND	55505	429	8	0	1	0	4	1	1	0	83	134	30.50	5000	8	RPN373
200407	301636	C	6/03/71	F36	69	FORD	THUND	25440	429	8	0	1	0	4	1	1	0	73	109	30.50	5000	8	PFK683
200416	301863	C	8/10/71	F36	69	FORD	THUND	36172	429	8	0	1	0	4	1	1	0	79	106	30.50	5000	8	PFH445
200060	[illegible]	R	5/12/71	F36	69	MERC	MARQU	36715	429	8	0	1	0	4	1	1	0	78	119	30.30	4500	8	RXK190
200265	301721	C	6/22/71	G51	68	CHEV	CHEVE	36519	230	6	0	0	0	1	1	1	0	83	128	30.50	3500	8	RCC392
200328	301542	C	5/11/71	G51	68	CHEV	CAMAR	32208	230	6	0	0	0	1	1	1	0	71	92	30.25	3500	8	PLH397
200374	301705	C	6/18/71	G51	68	CHEV	CHEVE	36041	230	6	0	1	0	1	1	1	0	81	125	30.45	3500	8	PVW193
200380	301624	C	5/28/71	G51	68	CHEV	NOVA	58969	230	6	0	1	0	1	1	1	0	74	96	30.45	3500	8	PLZ943
200398	301557	C	5/13/71	G51	68	CHEV	NOVA	38937	230	6	0	0	0	1	1	1	0	69	75	30.35	3500	8	PYR565
200398	301566	H																					
200399	301613	C	5/26/71	G51	69	CHEV	CHEVE	45226	230	6	0	0	0	1	1	1	0	80	126	30.54	3500	8	PNY410
200409	301714	C	6/21/71	G51	69	CHEV	NOVA	29655	230	6	0	1	0	1	1	1	0	81	137	30.55	3500	8	RML470
200415	301927	C	8/24/71	G51	69	CHEV	NOVA	69054	230	6	0	0	0	1	1	1	0	80	139	30.45	3500	8	PHF477
200416	301925	C	8/24/71	G51	69	CHEV	NOVA	46371	230	6	0	0	0	1	1	1	0	78	136	30.43	3500	8	PHF476
200418	301619	C	5/27/71	G51	69	CHEV	CHEVE	17267	230	6	0	1	0	1	1	1	0	77	126	30.46	3500	8	RBB737
200328	301550	R	5/12/71	G51	68	CHEV	CAMAR	32208	230	6	0	0	0	1	1	1	0	75	106	30.30	3500	8	PLH397
200221	301719	C	6/22/71	G52	67	CHEV	NOVA	34119	250	6	0	1	0	1	1	1	0	82	136	30.50	3500	8	PVP543
200280	301749	C	7/01/71	G52	68	CHEV	NOVA	42139	250	6	0	1	0	1	1	1	0	77	125	30.50	3500	8	PLZ952
200280	301750	H																					
200282	301711	C	6/21/71	G52	69	CHEV	CHEVE	58012	250	6	0	1	0	1	1	1	0	80	127	30.50	3500	8	NWD79
200320	301733	C	6/25/71	G52	69	CHEV	NOVA	22952	250	6	0	1	0	1	1	1	0	82	130	30.50	3500	8	RXD636
200336	301896	C	8/18/71	G52	68	CHEV	CHEVE	55496	250	6	0	0	0	1	1	1	0	78	90	30.45	3500	8	RZY93
200336	301897	H																					
200339	301898	C	8/13/71	G52	67	CHEV	NOVA	41836	250	6	0	1	0	1	1	1	0	79	130	30.60	3500	8	RSK411
200353	301736	C	6/25/71	G52	69	CHEV	CHEVE	37839	250	6	0	1	0	1	1	1	0	82	130	30.50	3500	8	PLJ953
200362	301790	C	7/21/71	G52	69	CHEV	CHEVE	44711	250	6	0	1	0	1	1	1	0	84	139	30.55	3500	8	PGK245
200369	301518	C	5/05/71	G52	69	CHEV	IMPAL	34196	250	6	0	1	0	1	1	1	0	74	103	30.20	4000	8	RVL95
200391	301751	C	7/01/71	G52	68	CHEV	NOVA	27033	250	6	0	1	0	1	1	1	0	80	120	30.50	3500	8	PMD785
200369	301526	R	5/06/71	G52	69	CHEV	IMPAL	34196	250	6	0	1	0	1	1	1	0	77	121	30.10	4000	8	RVL95
200019	301409	C	4/15/71	G53	68	CHEV	MALIB	40156	307	8	0	1	0	2	1	1	0	76	83	30.50	3500	8	PRZ869
200019	301408	H																					
200039	301405	C	4/15/71	G53	68	CHEV	IMPAL	58369	307	8	0	1	0	2	1	1	0	78	90	30.50	4000	8	HTP226
200060	301513	C	5/05/71	G53	67	CHEV	CHEVE	33906	307	8	0	1	0	2	1	1	0	70	93	30.25	3500	8	[illegible]
200073	301626	C	6/15/71	G53	69	CHEV	MALIB	57973	307	8	0	1	0	2	1	1	0	80	116	30.20	4000	8	RXL618
200086	301632	C	6/23/71	G53	69	CHEV	CHEVE	23803	307	8	0	1	0	2	1	1	0	78	107	30.25	3500	8	PFD789
200106	301656	C	6/23/71	G53	69	CHEV	NOVA	19233	307	8	0	1	0	2	1	1	0	75	137	30.05	3500	8	RJM750
200176	301655	C	6/23/71	G53	69	CHEV	MALIB	35283	307	8	0	1	0	2	1	1	0	83	111	30.10	3500	8	PLF420

START VEHICLE INFORMATION HOUSTON PHASE III PROCESSING DATE- 03/27/72

C[illegible]	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSO	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200144	301442	C	4/22/71	G53	69	CHEV	NOVA	22979	307	8	0	1	0	2	1	1	0	78	126	30.00	3500	8	RCL707
2[illegible]1	301216	C	8/20/71	G53	68	CHEV	NOVA	45779	307	8	0	1	0	2	1	1	0	86	156	30.60	3500	8	RHS932
2[illegible]90	301523	R	5/06/71	G53	69	CHEV	CHEVE	33906	307	8	0	1	0	2	1	1	0	76	117	30.15	3500	8	NSD459
200009	30184[illegible]	C	8/05/71	G54	68	CHEV	BELAI	43275	327	8	0	1	0	4	1	1	0	83	128	30.50	4000	8	PWZ720
200009	301946	H																					
200036	301429	C	4/19/71	G54	68	CHEV	CHEVE	59626	327	8	0	1	0	4	1	1	0	76	105	30.25	3500	8	RJZ590
200092	301417	C	4/16/71	G54	68	CHEV	IMPAL	26500	327	8	0	1	0	4	1	1	0	74	97	30.20	4000	8	PTS744
200097	301405	C	4/15/71	G54	69	CHEV	STA.A	39355	327	8	0	1	0	4	1	1	0	69	79	30.50	4500	8	PFS631
[illegible]25	301450	C	4/22/71	G54	69	CHEV	IMPAL	27293	327	8	0	1	0	4	1	1	0	78	126	30.00	4000	8	RGT331
[illegible]176	301455	C	4/23/71	G54	68	CHEV	MALIB	41090	327	8	0	1	0	4	1	1	0	77	110	30.05	3500	8	PMC597
200176	301463	H																					
200207	301426	C	4/19/71	G54	69	CHEV	IMPAL	49983	327	8	0	1	0	4	1	1	0	80	122	30.20	4000	8	RK4709
200222	301903	C	8/19/71	G54	68	CHEV	MALIB	37846	327	8	0	1	0	4	1	1	0	79	118	30.50	3500	8	SJG28
200256	301423	C	4/19/71	G54	69	CHEV	IMPAL	37396	327	8	0	1	0	4	1	1	0	80	116	30.20	4000	8	PFN360
200309	301845	R	8/06/71	G54	68	CHEV	BELAI	43283	327	8	0	1	0	4	1	1	0	86	157	30.49	4000	8	PWZ720
200004	301402	C	4/14/71	G55	69	CHEV	CAPRI	49459	350	8	0	1	0	4	1	1	0	78	89	30.60	4000	8	RZP98
200005	301396	C	4/13/71	G55	69	CHEV	CAPRI	48168	350	8	0	1	0	4	1	1	0	74	81	30.60	4000	8	SCH655
200077	301422	C	4/19/71	G55	69	CHEV	CAPRI	23835	350	8	0	1	0	4	1	1	0	74	103	30.20	4000	8	RCJ307
200078	301434	C	4/20/71	G55	69	CHEV	IMPAL	35716	350	8	0	1	0	4	1	1	0	80	103	30.35	4000	8	RNX933
200103	301416	C	4/16/71	G55	69	CHEV	CHEVE	27180	350	8	0	1	0	4	1	1	0	73	94	30.20	3500	8	RK5401
200140	301660	C	6/08/71	G55	69	CHEV	IMPAL	48433	350	8	0	1	0	4	1	1	0	84	146	30.45	4000	8	PFK933
200196	301675	C	6/11/71	G55	69	CHEV	MALIB	38521	350	8	0	1	0	4	1	1	0	81	119	30.50	3500	8	NVX386
200253	301690	C	6/14/71	G55	69	CHEV	CAPRI	13140	350	8	0	1	0	4	1	1	0	78	113	30.30	4000	8	PLR682
200255	301420	C	4/16/71	G55	69	CHEV	KINGS	47737	350	8	0	1	0	4	1	1	0	74	103	30.15	4500	8	RGT742
200278	301492	C	4/29/71	G55	69	CHEV	IMPAL	31323	350	8	0	1	0	4	1	1	0	68	63	30.32	4000	8	RFW373
200378	301684	C	6/14/71	G55	69	CHEV	CAPRI	69070	350	8	0	1	0	4	1	1	0	81	120	30.30	4000	8	NTK928
200140	301665	R	6/09/71	G55	69	CHEV	IMPAL	48433	350	8	0	1	0	4	1	1	0	80	121	30.40	4000	8	PFK933
200223	301439	C	4/21/71	G56	68	CHEV	CHEVE	21702	396	8	0	1	0	4	1	1	0	73	94	30.20	4000	8	RDG793
200243	301461	C	4/26/71	G56	68	CHEV	CHEVE	26476	396	8	0	1	0	4	1	1	0	73	104	30.20	4000	8	PLC469
200319	301464	C	4/26/71	G56	69	CHEV	CHEVE	35640	396	8	0	1	0	4	1	1	0	75	107	30.20	4000	8	UH BAND
200333	301435	C	4/21/71	G56	69	CHEV	CHEVE	29412	396	8	0	1	0	4	1	1	0	70	79	30.20	4000	8	RZN200
200342	301441	C	4/21/71	G56	69	CHEV	CHEVE	26774	396	8	0	1	0	4	1	1	0	80	116	30.05	4000	8	PSY335
200344	301473	C	4/27/71	G56	68	CHEV	CHEVE	66832	396	8	0	1	0	4	1	1	0	84	122	30.10	4000	8	RPX173
200344	301475	H																					
200345	301544	C	5/11/71	G56	68	CHEV	CHEVE	39400	396	8	0	1	0	4	1	1	0	73	99	30.25	4000	8	PLM643
200354	301539	C	5/10/71	G56	68	CHEV	IMPAL	40820	396	8	0	1	0	4	1	1	0	78	113	30.25	4500	8	RNK124
200368	301447	C	4/22/71	G56	68	CHEV	CAPRI	24996	396	8	0	1	0	4	1	1	0	77	116	30.00	4500	8	RZR719
200345	301549	R	5/12/71	G56	69	CHEV	CHEVE	39400	396	9	0	1	0	4	1	1	0	73	99	30.30	4000	8	PLM643
200008	301433	C	4/20/71	G61	69	PONT	LEMAN	29037	350	8	0	1	0	2	1	1	0	79	105	30.30	4000	8	RVX410
200088	301905	C	8/19/71	G61	69	PONT	LEMAN	35203	350	8	0	1	0	2	1	1	0	82	136	30.50	4000	8	PXH321
200115	301694	C	6/16/71	G61	69	PONT	LEMAN	26790	350	8	0	1	0	2	1	1	0	82	130	30.35	3500	8	PXF389
200150	301678	C	6/14/71	G61	68	PONT	LEMAN	52394	350	8	0	1	0	2	1	1	0	76	110	30.30	3500	8	RMT649
200168	301737	C	6/25/71	G61	68	PONT	LEMAN	18647	350	8	0	1	0	2	1	1	0	83	134	30.50	4000	8	PGV78
200183	301440	C	4/21/71	G61	68	PONT	LEMAN	24678	350	8	0	1	0	2	1	1	0	80	116	30.05	4000	8	RFB337
200187	301453	C	4/23/71	G61	68	PONT	TEMPE	34475	350	8	0	1	0	2	1	1	0	74	103	30.05	4000	8	RKZ331
200196	301465	C	4/26/71	G61	68	PONT	LEMAN	36241	350	8	0	1	0	2	1	1	0	76	111	30.20	4000	8	PFC191
200115	301697	R	6/17/71	G61	68	PONT	LEMAN	26790	350	8	0	1	0	2	1	1	0	77	114	30.40	3500	8	PXF399
200019	301406	C	4/15/71	G62	68	PONT	CATAL	36066	400	8	0	1	0	2	1	1	0	70	78	30.50	4000	8	RDX393
200058	301442	C	4/21/71	G62	69	PONT	CATAL	46807	400	8	0	1	0	2	1	1	0	81	127	30.05	4500	8	RSR300
200090	301462	C	4/26/71	G62	69	PONT	EXECU	34[illegible]25	400	8	0	1	0	2	1	1	0	74	103	30.20	4500	8	PTT496
200094	301489	C	4/29/71	G62	68	PONT	CATAL	45629	400	8	0	1	0	2	1		0	71	77	30.30	4000	8	PJM398
200103	301834	C	8/06/71	G62	69	PONT	CATAL	28640	400	8	0	1	0	2	1		0	75	100	30.50	4500	8	RTW95
200117	301404	C	4/14/71	G62	69	PONT	CATAL	34434	400	8	0	1	0	2	1		0	78	89	30.60	4500	8	PFJ385
200120	301479	C	4/28/71	G62	69	PONT	EXECU	38404	400	8	0	1	0	2	1	1	0	79	118	30.10	4500	8	RTF671
200144	301867	C	8/10/71	G62	69	PONT	CATAL	41423	400	8	0	1	0	2	1	1	0	86	117	30.50	4500	8	PXK774
200167	301444	C	4/22/71	G62	69	PONT	CATAL	23600	400	8	0	1	0	2	1	1	0	75	102	30.05	4500	8	RMW163
200197	301773	C	7/17/71	G62	69	PONT	EXECU	37719	400	8	0	1	0	2	1	1	0	84	126	30.55	4500	8	PMP744
200247	301437	C	4/21/71	G62	68	PONT	CATAL	39267	400	8	0	1	0	2	1	1	0	73	89	30.20	4000	8	PKT322
200247	301437	H																					
200197	301777	R	7/19/71	G62	69	PONT	EXECU	37718	400	8	0	1	0	2	1	1	0	83	82	30.50	4500	8	PMP744
200174	301552	C	5/12/71	G63	69	PONT	BONNE	34311	428	8	0	1	0	4	1	1	0	76	110	30.30	4500	8	RRF13
200200	301569	C	5/14/71	G63	69	PONT	BONNE	56656	428	8	0	1	0	4	1	1	0	76	99	30.40	4500	8	PCC53
200227	301472	C	4/27/71	G63	69	PONT	BONNE	70424	428	8	0	1	0	4	1	1	0	79	124	30.10	4500	8	PKT779
200312	301634	C	6/02/71	G63	69	PONT	BONNE	67588	428	9	0	1	0	4	1	1	0	79	122	30.48	4500	8	SFX10
200367	301537	C	5/10/71	G63	69	PONT	BONNE	49114	428	8	0	1	0	4	1	1	0	75	106	30.25	4500	8	PTJ619
200406	301593	C	5/21/71	G63	69	PONT	BONNE	35691	428	8	0	1	0	4	1	1	0	75	111	30.50	4500	8	PVZ846
200408	301515	C	5/05/71	G63	69	PONT	BONNE	38215	428	8	0	1	0	4	1	1	0	72	95	30.25	5000	8	PHT313
200413	301663	C	6/10/71	G63	69	PONT	BONNE	49623	428	8	0	1	0	4	1	1	0	78	124	30.40	4500	8	RDF767
200417	301865	C	8/10/71	G63	69	PONT	BONNE	30309	428	8	0	1	0	4	1	1	0	80	114	30.50	4500	8	RFR415
200408	301525	R	5/06/71	G63	69	PONT	BONNE	38215	428	8	0	1	0	4	1	1	0	77	121	30.15	5000	8	PHT313
200027	301407	C	4/15/71	G66	68	OLDS	CUTLA	44085	350	8	0	1	0	2	1	1	0	74	81	30.50	4000	8	NVY520
2[illegible]41	301503	C	5/06/71	G66	69	OLDS	CUTLA	48139	350	8	0	1	0	2	1	1	0	72	94	30.50	4000	8	RYP683
200063	301502	C	5/03/71	G66	69	OLDS	EIGHT	22883	350	8	0	1	0	2	1	1	0	73	93	30.50	4500	8	PMS300
200082	301228	C	3/05/71	G66	68	OLDS	CUTLA	27509	350	8	0	1	0	2	1	1	0	71	67	30.45	4000	8	SHARNE
200216	301637	C	6/02/71	G66	68	OLDS	CUTLA	50367	350	8	0	1	0	2	1	1	0	75	123	30.44	4000	8	NXL613
200225	301516	C	5/05/71	G66	69	OLDS	CUTLA	39035	350	8	0	1	0	2	1	1	0	73	99	30.25	4000	8	PXG449
200232	301732	C	6/25/71	G66	69	OLDS	CUTLA	29142	350	8	0	1	0	2	1	1	0	82	130	30.50	3500	8	PBZ302
200244	301741	C	6/28/71	G66	69	OLDS	CUTLA	19101	350	8	0	1	0	2	1	1	0	83	135	30.40	3500	8	PFK679
200245	301427	C	4/20/71	G66	69	OLDS	CUTLA	51463	350	8	0	1	0	2	1	1	0	75	107	30.20	4000	8	PTJ560
200272	301712	C	6/21/71	G66	68	OLDS	CUTLA	36062	350	8	0	1	0	2	1	1	0	81	131	30.50	4000	8	PLH496

COLD START VEHICLE INFORMATION — HOUSTON PHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	--DATE--	MFG	YR	MAKE	MODEL	ODOMR	CID	CYL	TRN	A/C	FSD	VIS	PCV	EXH	EVP	TMP	HUM	BAROM	INRT	HP	LIC NO
200273	301784	C	7/22/71	GM	69	OLDS	DELTA	37767	350	8	0	1	0	2	1	1	0	83	128	30.50	4500	8	PYX97
200041	301519	R	5/05/71	GM	69	OLDS	CUTLA	49130	350	8	0	1	0	2	1	1	0	75	107	30.20	4000	8	RAF683
200043	301467	C	4/27/71	GM	69	OLDS	NINET	58761	455	8	0	1	0	4	1	1	0	76	117	30.10	4500	8	PTK277
200145	301499	C	4/30/71	GM	69	OLDS	NINET	31934	455	8	0	1	0	4	1	1	0	75	106	30.40	4500	8	PFV925
200277	301497	C	4/29/71	GM	69	OLDS	NINET	19730	455	8	0	1	0	4	1	1	0	70	65	30.30	4500	8	PXY830
200305	301500	C	4/30/71	GM	69	OLDS	NINET	46652	455	8	0	1	0	4	1	1	0	78	112	30.40	4500	8	RZH88
200405	301471	C	4/27/71	GM	69	OLDS	NINET	48202	455	8	0	1	0	4	1	1	0	78	119	30.10	4500	8	PV7429
200420	301922	C	8/22/71	GM	69	OLDS	NINET	31737	455	8	0	1	0	4	1	1	0	80	121	30.40	4500	8	RFP21
200420	301923	R	8/23/71	GM	69	OLDS	NINET	31747	455	8	0	1	0	4	1	1	0	80	121	30.40	4500	8	RFP21
200093	301760	C	7/08/71	GM	68	BUIC	LESAB	58323	350	8	0	1	0	4	1	1	0	85	137	30.53	4500	8	NBS
200065	301469	C	4/27/71	GM	69	BUIC	LESAB	36661	350	8	0	1	0	4	1	1	0	78	119	30.10	4500	8	RRN42
200065	301470	H																					
200132	301468	C	4/27/71	GM	68	BUIC	LESAB	48470	350	8	0	1	0	4	1	1	0	77	115	30.10	4500	8	PLT536
200303	301623	C	6/16/71	GM	68	BUIC	SKYLA	54000	350	8	0	1	0	4	1	1	0	84	122	30.10	4000	8	PGL474
200318	301474	C	4/27/71	GM	68	BUIC	GRAND	36812	350	8	0	1	0	4	1	1	0	75	117	30.46	4500	8	PFK522
200331	301617	C	5/27/71	GM	69	BUIC	LESAB	36697	350	8	0	1	0	4	1	1	0	75	105	30.62	4500	8	R44405
200349	301644	C	6/04/71	GM	68	BUIC	LESAB	47112	350	8	0	1	0	4	1	1	0	80	127	30.50	4000	8	RSC128
200360	301718	C	6/22/71	GM	68	BUIC	SKYLA	64497	350	8	0	1	0	4	1	1	0	82	136	30.45	4000	8	PXK607
200379	301659	C	6/08/71	GM	69	BUIC	SKYLA	52466	350	8	0	1	0	4	1	1	0	79	124	30.10	4000	8	PWP449
200387	301490	C	4/28/71	GM	69	BUIC	SKYLA	16011	350	8	0	1	0	4	1	1	0	79	124	30.10	4000	8	PPZ583
200390	301492	C	4/29/71	GM	69	BUIC	SKYLA	54226	350	8	0	1	0	4	1	1	0	74	87	30.30	4000	8	PKZ473
200390	301494	R	4/30/71	GM	69	BUIC	SKYLA	54226	350	8	0	1	0	4	1	1	0	70	88	30.25	4000	8	PKZ473
200133	301651	C	6/07/71	GM	69	BUIC	WILDC	45256	430	8	0	1	0	4	1	1	0	77	108	30.40	4500	8	PZL84
200194	301490	C	4/29/71	GM	69	BUIC	ELECT	26004	430	8	0	1	0	4	1	1	0	72	75	30.30	4500	8	PHE909
200196	301510	C	5/04/71	GM	69	BUIC	ELECT	33136	430	8	0	1	0	4	1	1	0	78	112	30.50	4500	8	PXR977
200192	301648	C	6/04/71	GM	69	BUIC	WILDC	24453	430	8	0	1	0	4	1	1	0	77	125	30.65	4500	8	RRD714
200212	301477	C	4/28/71	GM	69	BUIC	WILDC	9976	430	8	0	1	0	4	1	1	0	78	119	30.10	4500	8	RBY638
200252	301481	C	4/28/71	GM	69	BUIC	WILDC	23769	430	8	0	1	0	4	1	1	0	80	128	30.10	4500	8	RJR
200267	301505	C	5/03/71	GM	69	BUIC	WILDC	10531	430	8	0	1	0	4	1	1	0	78	112	30.50	4500	8	RVF88
200288	301635	C	6/02/71	GM	69	BUIC	ELECT	20345	430	8	0	1	0	4	1	1	0	79	122	30.48	4500	8	PPH681
200288	301642	R	6/03/71	GM	69	BUIC	ELECT	20365	430	8	0	1	0	4	1	1	0	78	123	30.60	4500	8	PPH681
200142	301618	C	5/27/71	GM	69	CADI	DEVIL	18731	472	8	0	1	0	4	1	2	0	77	126	30.46	5000	8	PFY539
200154	301662	C	6/14/71	GM	69	CADI	DEVIL	15656	472	8	0	1	0	4	1	2	0	78	113	30.30	5000	8	RGV293
200289	301779	C	7/20/71	GM	69	CADI	DEVIL	15116	472	8	0	1	0	4	1	2	0	86	84	30.45	5000	8	PVY59C
200313	301899	C	8/18/71	GM	69	CADI	DEVIL	25406	472	8	0	1	0	4	1	2	0	81	107	30.47	5000	8	PVX12
200325	301766	C	7/13/71	GM	69	CADI	DEVIL	40900	472	8	0	1	0	4	1	2	0	80	126	30.55	5000	8	RVX148
200330	301939	C	8/06/71	GM	69	CADI	DEVIL	44491	472	8	0	1	0	4	1	2	0	80	120	30.50	5000	8	PZK293
200340	301772	C	7/17/71	GM	69	CADI	DEVIL	37691	472	8	0	1	0	4	1	2	0	84	126	30.55	5000	8	PTW78
200364	301716	C	6/22/71	GM	69	CADI	DEVIL	13623	472	8	0	1	0	4	1	2	0	78	124	30.50	5000	8	PHJ851
200381	301744	C	7/08/71	GM	69	CADI	DEVIL	39036	472	8	0	1	0	4	1	2	0	79	116	30.50	5000	8	PGP359
200364	301723	R	6/23/71	GM	69	CADI	DEVIL	13627	472	8	0	1	0	4	1	2	0	78	124	30.50	5000	8	PHJ851
200016	301349	C	4/13/71	VW	69	VOLK	STAND	17222	91	4	4	1	0	1	1	1	0	71	71	30.60	2000	4	HKS121
200031	301707	C	6/18/71	VW	68	VOLK	STAND	52296	91	4	4	1	0	1	1	1	0	81	125	30.45	2000	4	RDZ23
200046	301740	C	6/28/71	VW	69	VOLK	STAND	36786	91	4	4	0	0	1	1	1	0	77	114	30.40	2000	4	RDK323
200049	301671	C	6/11/71	VW	68	VOLK	STAND	49929	91	4	4	1	0	1	1	1	0	79	116	30.45	2000	4	R3F275
200066	301536	C	5/10/71	VW	69	VOLK	STAND	41909	91	4	4	1	0	1	1	1	0	74	103	30.25	2000	4	RV5904
200067	301535	C	5/10/71	VW	69	VOLK	STAND	38411	91	4	4	1	0	1	1	1	0	74	103	30.20	2000	4	PV4145
200049	301946	C	8/10/71	VW	69	VOLK	STAND	48534	91	4	4	0	0	1	1	1	0	82	117	30.50	2000	4	NMD142
200188	301623	C	6/01/71	VW	68	VOLK	STAND	24860	91	4	4	0	0	1	1	1	0	74	102	30.35	2000	4	PGY206
200421	301717	C	6/22/71	VW	69	VOLK	STAND	27451	91	4	4	0	0	1	1	1	0	80	127	30.50	2000	4	PKT131
200047	301541	R	5/11/71	VW	69	VOLK	STAND	38411	91	4	4	1	0	1	1	1	0	70	93	30.25	2000	4	PVN185
200152	301830	C	5/07/71	VW	68	VOLK	SQRK	70073	97	4	4	0	1	0	1	1	0	82	124	30.35	2500	4	PJP708
200220	301793	C	7/22/71	VW	69	VOLK	SQRK	36039	97	4	4	0	1	0	1	1	0	83	128	30.50	2500	4	RP0504
200240	301514	C	5/05/71	VW	69	VOLK	SQRK	28473	97	4	4	0	1	0	1	1	0	70	83	30.25	2500	4	RSR805
200241	301761	C	7/09/71	VW	68	VOLK	SQRK	20380	97	4	4	0	1	0	1	1	0	83	115	30.60	2500	4	PPW889
200293	301795	C	7/27/71	VW	69	VOLK	SQRK	16913	97	4	4	1	1	0	1	1	0	83	128	30.44	2500	4	PFP189
200240	301514	R	5/06/71	VW	69	VOLK	FTGK	28473	97	4	4	0	1	0	1	1	0	76	111	30.20	2500	4	RSR805

APPENDIX B

VEHICLE EMISSION TEST DATA TABLES

1. Legend and Interpretation of Vehicle Emission Test Data Tables.

2. Tables:

B-1	Kansas City	Phase I
B-2	Kansas City	Phase II
B-3	Kansas City	Phase III
B-4	Houston	Phase I
B-5	Houston	Phase II
B-6	Houston	Phase III

LEGEND AND INTERPRETATION OF VEHICLE EMISSION TEST DATA TABLES

Key Words	Description
CAR NO	This is the number used to identify each vehicle and the location where test was conducted. The first number denotes the location. 1 = Kansas City, Mo., 2 = Houston, Texas. The last five numbers denote the identification number for each vehicle.
RUN NO	This is a sequential number assigned to each test. The first number denotes the phase of testing for all cities. 1 = Phase 1, 2 = Phase 2, 3 = Phase 3, etc.
S	This indicates whether a vehicle was tested from a hot start or cold start condition. C = cold start test H = hot start test R = replicate cold start test
CYCLE 7 IDLE	This represents the uncorrected emission values from the 7th cycle idle mode.
CYCLE 1-4	Represents corrected and weighted emission results from the four warmup cycles of the Federal Cold Start Emission Test.
CYCLE 6-7	This represents the corrected and weighted emission results of the hot cycles of the Federal Cold Start Emission Test.
COMPOSITE	This represents the corrected and weighted emission results of the entire Federal Cold Start Emission Test as measured in parts per million (volume) for hydrocarbons and nitrogen oxides as dry NO and in percent (volume) for carbon monoxide.
MASS EQUIVALENT	This represents the composite emission results of the entire Federal Cold Start Emission Test expressed in grams per mile for hydrocarbons, carbon monoxide, and nitrogen oxides as dry NO, corrected for humidity.

NOTE:

Negative values in tables indicate that the data were invalid and were not used in analyses.

TABLE B-1

Kansas City

Phase I

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE 1 — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 1 IDLE HC	CYCLE 1 IDLE CO	CYCLE 1 IDLE NO	CYCLE 1 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 5-7 HC	CYCLES 5-7 CO	CYCLES 5-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100104	100151	C	307	8.84	74	9.02	362	3.29	744	278	2.88	1012	307	3.02	926	2.84	52.49	2.28
100150	100206	C	309	0.61	1022	13.10	234	0.57	1992	190	0.36	2187	204	0.63	2118	2.38	9.35	6.44
100195	100249	C	182	5.93	97	10.34	391	3.29	925	256	2.74	1234	289	2.93	1139	2.67	50.93	2.83
100196	100247	R	148	4.93	114	10.67	377	2.89	1158	226	2.40	1295	278	2.57	1243	2.57	44.67	2.96
100210	100248	C	79	3.86	118	12.00	249	2.39	1367	99	1.75	1822	151	1.97	1662	1.60	34.19	4.02
100210	100290	H	144	3.10	115	12.14				147	1.90	1936						
100238	100325	C	245	0.86	414	14.08	322	0.86	2369	272	0.63	2530	289	0.70	2466	3.35	15.23	7.32
100244	100331	C	270	4.50	129	11.70	399	2.32	1636	351	1.93	1941	367	2.06	1834	3.39	35.80	4.40
100246	100332	H	223	4.14	114	12.04				300	1.83	1529				2.77	31.40	3.62
100290	100339	C	260	4.89	144	11.69	322	1.63	2302	267	1.51	2494	286	1.55	2426	2.96	29.97	6.22
100292	100341	C	259	6.95	142	9.67	763	4.30	891	339	4.19	779	480	4.22	768	4.46	73.23	1.73
100401	100563	C	208	7.22	140	10.19	377	2.05	2234	300	1.73	2467	326	1.84	2376	3.35	39.58	6.27
100401	100564	H	268	7.33	104	10.17				259	1.78	2077						
100403	100566	C	321	7.88	164	9.19	348	2.28	2288	294	2.10	2481	317	2.16	2415	3.61	47.02	7.21
100403	100567	H	191	5.06	189	11.90				140	0.82	1291						
100404	100551	C	427	8.87	71	8.77	1005	2.01	1622	667	2.25	1901	785	2.16	1803	7.26	37.48	4.26
100406	100552	H	268	7.24	89	9.97				336	1.88	2035						
100412	100560	C	184	1.25	280	13.76	325	2.60	1276	282	3.00	1030	277	2.93	1116	2.85	56.66	2.94
100417	100570	C	440	0.14	1305	12.91	427	1.17	1997	454	0.23	2410	444	0.55	2265	4.57	10.63	6.26
100435	100599	C	188	0.12	289	12.81	304	0.97	1571	278	0.62	1884	287	0.81	1774	3.32	13.27	5.26
100440	100605	C	304	0.24	779	12.98	696	1.40	2260	348	0.37	2845	385	0.73	2640	3.96	14.11	6.95
100452	100080	C	101	0.16	579	12.23	234	2.41	1762	130	0.31	2687	166	1.04	2396	1.70	20.11	6.58
100149	100233	C	281	4.77	109	11.65	615	2.90	1707	205	0.95	1956	278	1.63	1900	2.86	31.91	5.07
100189	100234	H	260	4.93	112	11.13				201	0.96	1801						
100202	100276	C	276	3.72	184	12.20	337	3.20	1922	191	1.33	1935	242	1.98	1720	2.49	38.28	4.90
100202	100286	H	212	3.61	214	11.99	318	3.23	1969	199	1.30	2030	240	1.97	1791	2.47	38.09	4.83
100224	100309	C	217	2.52	160	13.11	340	1.89	1556	246	1.29	1909	277	1.49	1784	2.88	29.15	4.96
100244	100336	C	423	2.69	247	12.62	333	2.98	1729	210	1.05	2516	254	1.72	2239	2.62	33.25	5.72
100283	100354	C	333	4.34	139	11.68	569	4.20	992	290	1.62	1637	387	2.52	1411	4.48	54.88	4.12
100283	100355	H	303	3.81	169	12.12				250	1.55	1690						
100285	100358	C	262	4.86	208	11.03	399	3.92	1544	241	1.50	2367	296	2.20	2078	3.04	42.94	5.46
100285	100359	H	289	4.92	109	11.10				249	1.43	2298						
100288	100364	C	278	4.14	181	11.90	293	2.79	1577	218	1.28	2304	243	1.79	2049	4.50	34.61	5.39
100289	100365	H	252	4.52	130	11.85				208	1.29	2190						
100294	100374	C	179	4.08	122	12.05	334	3.92	1335	232	1.54	2193	264	2.24	1882	2.78	43.25	5.01
100294	100387	C	268	2.55	275	11.98	317	2.40	1854	233	0.80	2987	262	1.36	2330	2.69	26.29	6.69
100294	100388	H	258	2.13	229	11.28				205	0.67	2298						
100296	100390	C	537	9.60	97	8.33	627	2.92	1501	393	2.97	1607	448	2.95	1569	4.14	91.27	4.04
100329	100441	C	169	3.74	204	11.90	264	3.41	1671	163	1.15	2731	194	1.94	2359	2.05	37.91	6.21
100325	100442	H	222	6.12	104	10.80				182	1.38	2993						
100326	100443	C	108	0.43	144	13.90	304	1.20	1817	248	0.45	2235	267	0.71	2088	2.47	12.33	4.94
100358	100443	C	281	3.00	229	12.22	518	2.88	1660	211	0.91	2459	244	1.59	2179	2.55	30.74	5.83
100359	100444	C	194	0.20	488	13.51	248	0.83	2253	209	0.55	2133	222	0.57	2176	2.82	13.60	7.39
100359	100484	H	116	0.15	211	11.35				167	0.65	1909						
100012	100021	C	237	3.95	150	12.19	309	2.17	1224	243	1.46	1591	266	1.69	1436	3.08	36.79	4.50
100012	100022	H	212	2.78	133	12.94				233	1.06	1870						
100036	100057	C	322	0.92	532	13.37	898	2.48	1134	404	1.00	1846	576	1.91	1596	7.32	36.04	5.75
100036	100058	H	1278	1.96	132	11.78				307	0.87	1976						
100091	100079	C	183	5.22	139	11.36	233	2.18	825	175	1.72	1118	195	1.88	1015	2.03	36.71	2.87
100059	100089	C	248	6.40	83	10.57	352	2.84	1618	239	1.64	2190	278	2.06	1989	3.53	49.17	6.75
100061	100091	C	123	2.44	108	12.92	271	1.18	1584	222	0.87	1930	239	0.97	1808	2.72	20.76	5.38
100061	100092	H	121	2.68	133	12.79				284	0.96	1791						
100105	100150	C	173	0.83	224	13.36	298	1.13	1826	207	0.63	2200	224	0.80	2069	2.59	17.41	6.28
100120	100171	C	148	0.40	142	13.88	285	1.86	1965	199	0.40	2664	229	0.91	2412	2.91	21.72	8.07
100120	100172	H	146	0.24	159	13.74				147	0.35	2348						
100122	100175	C	358	4.83	159	11.18	595	3.34	911	279	1.64	1984	389	2.93	1608	4.96	69.80	5.45
100122	100176	H	182	3.36	127	11.84				117	0.94	1124						
100124	100183	C	187	2.10	155	12.35	391	1.92	1772	276	1.08	2178	312	1.37	2035	3.96	32.70	6.81
100132	100187	C	316	8.40	92	9.38	275	1.77	1856	251	2.11	1948	253	1.99	1915	3.00	63.32	5.75
100162	100225	C	244	5.65	111	10.59	334	4.09	1049	234	1.38	2068	269	2.32	1711	3.11	50.51	5.12
100163	100226	C	252	5.90	155	11.87	314	2.19	1422	245	1.46	1796	269	1.71	1665	3.11	37.22	4.99
100170	100235	C	189	3.79	139	11.40	256	1.63	1777	226	1.74	1792	235	1.70	1786	2.98	40.58	5.87
100180	100246	C	127	1.26	254	13.59	210	1.28	1399	144	0.48	1983	167	0.76	1778	2.12	18.14	5.85
100186	100252	C	234	5.27	143	11.96	302	2.29	1637	233	1.41	2065	257	1.71	1865	3.26	40.82	6.60
100189	100594	C	198	2.00	153	12.23	291	2.02	926	163	1.01	1169	193	1.36	1043	2.23	29.60	3.19
100189	100592	R	150	1.05	219	12.82	216	1.55	936	139	0.61	1366	165	0.93	1214	1.91	20.24	3.52
100520	101138	C	360	8.22	73	9.33	420	3.30	1587	330	1.99	2289	361	2.44	2043	4.98	58.13	6.70
100530	101365	C	178	3.13	150	12.31	315	2.10	1713	215	1.56	2053	249	1.74	1933	3.15	41.45	4.23
100033	100572	C	163	1.93	98	11.89	276	1.08	1882	229	0.90	1998	245	0.99	1931	3.34	24.36	6.96
100047	100074	C	309	7.66	77	9.86	322	2.32	1595	254	2.35	1672	277	2.33	1865	3.78	59.79	6.21
100047	100075	H	280	4.76	71	10.10	248	1.01	1837	244	1.87	1691	204	0.73	1951	2.80	18.72	6.96
100056	100084	C	117	0.67	123	14.26	309	3.27	887	183	0.58	2013	249	2.50	1154	3.16	59.96	3.78
100085	100124	C	141	2.12	139	13.10	402	3.81	1446	218	2.09	1298	305	3.39	822	4.57	90.52	5.72
100085	100819	H	199	3.60	107	11.95				300	3.39	1738	335	3.53	1635			
100090	100131	C	353	9.63	92	8.95				287	3.45	1411						
100090	100132	H	290	8.21	83	9.43				2044	3.44	1615	2184	3.70	1425	29.79	94.88	5.10
100099	100142	C	2011	5.95	45	9.18	2451	4.19	1074	213	1.14	2218	229	1.16	2207	2.86	27.63	7.52
100117	100168	C	169	3.15	126	12.13	249	1.20	2189	489	1.01	1885	475	1.13	1810	6.48	28.97	6.41
100133	100198	C	140	1.50	123	13.07	451	1.38	1672	261	0.78	2100	277	0.88	2045	3.78	22.46	7.37
100134	100196	C	169	2.32	104	12.03	309	1.07	2007									

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE 1 — PROCESSING DATE- 03/27/72

CAR NO	TEST NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100167	100231	C	192	3.79	106	11.85	253	1.81	1616	202	1.49	1886	219	1.40	1794	2.78	38.19	5.90
100174	100239	C	217	1.74	161	12.93	299	3.30	1564	227	1.34	2252	252	2.02	2011	3.63	34.71	7.91
										216	1.15	1297						
100174	100240	H	134	0.65	96	12.54				227	1.49	1821	231	1.68	1788	2.93	40.10	5.97
100217	100298	C	156	2.13	109	11.95	239	2.05	1728	199	2.24	-20	235	2.78	-474	3.20	71.29	-9.00
100222	100305	C	208	4.64	-14	10.66	304	3.81	1321	479	2.72	1981	530	3.00	1791	7.24	76.94	6.44
100232	100317	C	582	9.55	162	11.13	627	3.52	1440	281	1.81	1824	303	1.78	1758	4.13	45.64	6.14
100289	100363	C	253	4.88	111	10.86	366	1.75	1636	256	1.72	1849	289	1.69	1811	3.94	43.33	6.22
100253	100396	R	243	4.97	111	10.91	353	1.66	1741	266	2.16	1298	290	2.20	1306	3.68	52.52	4.32
100[illegible]	[illegible] 1129	C	132	2.08	87	10.96	336	2.30	1323	377	3.65	995	412	3.71	885	5.61	94.89	3.11
100[illegible]	101139	C	486	8.72	70	8.64	479	4.20	682									
100523	101155	C	105	0.53	132	14.09	324	2.14	1875	191	0.39	2952	237	1.00	2575	3.22	25.58	9.06
100101	100165	C	378	8.81	77	8.64	369	2.62	1509	306	2.26	1740	326	2.38	1659	4.89	67.10	6.50
100141	100224	C	167	2.96	126	12.70	175	1.36	1656	191	0.94	1960	178	1.08	1853	2.56	29.24	6.92
100187	100268	C	302	8.64	73	8.89	330	3.36	1276	273	2.93	1584	292	3.08	1476	3.98	78.98	5.24
100193	100269	H	286	7.15	76	9.42				260	2.31	1930						
100224	100311	C	206	0.43	121	13.06	334	2.11	1576	297	0.41	2149	309	1.00	1948	4.22	25.64	7.11
100256	100345	C	289	5.36	67	10.06	332	4.53	731	193	2.12	1345	241	2.96	1130	3.06	70.66	3.54
100256	100346	H	265	4.01	112	10.97				219	1.59	1543						
100260	100351	C	114	0.26	89	13.08	270	2.85	833	170	1.35	753	205	1.87	780	2.60	44.64	2.49
100260	100361	R	91	0.21	180	13.77	264	2.76	876	186	1.54	1234	213	1.98	1108	2.70	46.79	3.60
100284	100340	C	712	7.91	75	8.65	369	5.15	495	374	3.64	856	371	4.16	729	4.71	99.31	2.36
100277	100377	C	268	5.09	81	10.22	345	1.84	1688	217	1.52	1938	261	1.63	1850	3.56	41.79	6.65
100295	100402	C	759	3.45	71	11.13	316	4.61	183	301	2.88	337	304	3.48	283	3.89	83.08	0.95
100234	100403	H	336	3.87	63	11.17				363	2.61	472						
100298	100406	C	119	0.21	210	12.76	272	0.98	1921	245	0.53	2159	294	0.68	2075	3.46	17.43	7.49
100306	100416	C	413	4.57	58	9.24	502	5.73	360	315	4.04	597	381	4.62	514	4.87	111.01	1.71
100321	100436	C	490	4.31	58	9.99	435	2.31	1207	299	1.40	1638	347	1.72	1487	4.99	46.45	5.46
100321	100435	H	490	4.31	58	9.99				299	1.40	1638						
100333	100451	C	151	3.34	97	11.89	237	2.44	820	172	1.24	1356	194	1.66	1168	2.46	39.63	3.85
100342	100463	C	299	5.41	120	11.21	342	3.15	1319	251	2.42	1693	282	2.67	1562	3.85	68.47	5.42
100441	100606	C	277	4.13	89	11.13	384	4.39	446	302	3.81	598	330	4.01	544	4.19	95.74	1.76
100441	100607	H	276	3.27	136	11.64				314	4.05	670						
100142	100198	C	131	0.87	276	14.19	183	1.16	2331	145	0.91	2619	198	0.73	2518	1.62	14.11	6.68
100177	100243	C	122	2.68	126	12.87	303	0.98	2100	256	1.20	2080	272	1.11	2087	2.83	21.71	9.63
100187	100253	C	470	2.10	807	13.38	313	1.09	1764	306	0.58	1900	308	0.75	1852	3.17	14.90	5.34
100213	100293	C	233	5.14	118	11.55	251	1.00	2342	216	1.18	2525	228	1.11	2460	2.64	24.14	7.38
100239	100326	C	423	7.55	124	9.96	365	1.83	1890	338	2.39	1685	347	2.19	1756	3.57	42.35	4.62
100295	100364	C	337	8.44	81	9.10	311	2.02	2582	252	1.32	2831	272	1.56	2763	2.80	30.16	7.00
100292	100397	C	249	9.56	129	11.01	311	2.33	1543	228	1.40	1974	257	1.72	1823	2.64	33.25	4.78
100322	100436	C	194	3.59	121	12.41	366	5.06	498	282	4.60	555	304	4.76	535	3.13	92.05	1.41
100322	100437	H	182	2.42	165	13.28				255	4.49	609						
100328	100448	C	245	5.03	117	11.53	334	1.82	2237	248	1.16	2901	278	1.39	2408	3.22	30.26	7.22
100349	100471	C	234	4.47	184	11.79	269	1.44	2731	196	1.13	2876	213	1.23	2825	2.46	26.77	8.34
100353	100475	C	157	2.39	239	12.94	301	2.16	1765	205	0.84	2282	238	1.30	2101	2.45	29.13	5.67
100353	100476	H	229	4.24	130	11.75				258	1.04	2782						
100396	100477	C	201	2.07	157	13.22	271	1.93	1719	229	0.83	2119	243	1.21	1977	2.50	23.39	5.28
100394	100478	H	182	1.72	227	13.92				220	0.82	2445						
100344	100491	C	93	0.29	401	13.93	317	1.76	2005	229	0.74	2431	259	1.09	2281	2.66	21.07	6.28
100391	100514	C	187	0.20	269	13.67	264	1.26	1838	194	0.53	2003	218	0.78	1945	2.24	15.09	5.12
100491	100525	R	143	0.18	282	13.08	285	1.65	1494	218	0.52	1812	241	0.91	1700	2.48	17.59	4.53
100433	100596	C	224	4.99	107	11.02	404	4.55	604	282	3.88	736	324	4.11	689	3.75	89.49	1.99
100501	100990	C	198	5.69	111	11.76	292	1.86	1912	217	1.28	2028	243	1.48	1987	2.81	32.22	6.06
100338	100458	C	196	3.84	163	12.34	325	1.71	2212	221	0.94	2671	257	1.20	2510	2.64	23.20	6.46
100382	100916	C	189	3.07	190	12.99	266	1.09	2395	189	0.72	2625	215	0.84	2544	2.21	16.24	6.72
100387	100922	C	273	0.85	229	14.18	340	1.91	1312	292	0.79	1566	308	1.04	1477	3.17	20.11	3.93
100387	100923	H	246	1.22	297	13.92				271	0.66	1916						
100388	100924	C	237	1.51	252	13.43	370	0.74	2178	281	0.52	2377	312	0.59	2307	3.21	11.40	6.08
100388	100633	R	225	1.96	224	12.71	348	0.96	2300	261	0.60	2635	291	0.72	2517	2.99	13.91	6.78
100398	100541	C	142	2.40	267	12.77	239	1.02	2123	192	0.73	2592	208	0.83	2427	2.14	16.05	6.40
100402	100949	C	385	7.08	132	10.19	392	1.68	1783	281	1.77	1759	305	1.73	1767	3.14	33.45	4.66
100403	100549	C	119	2.65	167	12.86	230	2.66	999	196	1.99	1360	207	2.22	1233	1.91	38.52	2.91
100409	100550	H	90	1.37	204	13.73				180	1.89	1095						
100414	100566	C	168	1.87	230	12.33	321	1.43	2213	221	0.62	2558	249	0.90	2437	2.55	17.40	6.75
100429	100590	C	164	3.77	148	11.92	235	1.46	1740	161	0.71	1979	186	0.97	1895	1.91	18.75	4.89
100429	100591	H	263	9.31	123	11.11				207	1.01	2178						
100431	100594	C	148	2.23	112	12.90	284	2.17	1285	216	1.08	1886	239	1.46	1675	2.21	25.37	3.88
100432	100595	C	101	0.31	439	13.54	273	0.95	2566	177	0.28	2859	210	0.51	2756	2.16	9.85	7.13
100444	100611	C	62	0.25	131	13.83	333	0.93	1761	224	0.71	1894	262	0.78	1860	2.42	13.94	4.38
100444	100612	H	46	0.17	123	13.94				161	0.68	1557						
100445	100614	C	160	2.14	108	12.97	374	2.84	1271	340	1.06	1914	351	1.68	1688	3.24	29.15	4.02
100445	100615	H	99	1.50	108	13.08				242	0.92	1956						
100446	100616	C	126	0.17	291	11.99	313	0.92	2319	230	0.23	2671	253	0.47	2547	2.66	9.08	6.74
100447	100618	C	176	0.84	582	13.39	291	1.67	2022	214	0.33	2619	242	0.79	2410	2.49	15.27	6.36
100508	101047	C	102	5.23	130	12.91	235	1.33	1534	258	1.41	1502	249	1.38	1513	1.97	20.53	3.03
100003	100004	C	176	0.85	176	13.44	362	0.98	2011	294	0.46	2414	310	0.64	2272	3.59	13.91	7.37
100003	100005	H	193	0.67	196	14.36				312	0.60	2491						
100017	100022	C	635	11.62	68	7.74	507	1.51	1850	477	1.72	2109	487	1.84	2018	4.19	39.19	7.54
100017	100030	H	299	5.74	120	10.48				256	1.26	2263						
100037	100059	C	439	7.35	94	9.47	443	1.69	2068	388	1.36	2485	407	1.67	2339	4.71	32.00	7.60
100037	100060	H	400	7.27	87	9.75				497	1.91	2773						

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE 1 — PROCESSING DATE- 11/27/72

CAR NO	RUN NO	S	-CYCLE 7 IDLE- HC	CO	NO	CO2	-CYCLES 1-4- HC	CO	NO	-CYCLES 6-7- HC	CO	NO	-COMPOSITE- HC	CO	NO	-MASS EQUIVALENT- HC	CO	NOXC
100058	100098	C	390	7.55	114	9.77	303	2.99	568	240	1.82	773	267	2.21	701	3.03	48.11	2.15
100065	100097	C	227	4.12	127	11.81	321	1.34	1722	252	1.02	1967	276	1.13	1881	3.20	24.60	9.63
100068	100099	H	307	5.99	119	11.45				310	0.96	2474						
100071	100136	C	410	8.99	96	9.06	346	2.18	1160	272	2.11	1209	297	2.12	1191	3.72	30.61	4.47
100071	100107	H	467	9.85	94	8.99				296	2.21	1833						
100082	100122	C	212	3.26	129	12.83	293	1.44	1788	247	0.77	2120	263	1.00	2003	3.04	21.73	6.24
100082	100123	H	225	1.80	159	13.70				277	0.68	3020				2.88	13.30	8.39
100088	100129	C	296	3.51	147	12.53	376	2.07	2127	296	0.87	2738	324	1.28	2524	3.75	27.82	7.52
100116	100164	C	124	0.36	280	13.71	364	1.12	1958	275	0.36	2470	304	0.62	2290	3.89	14.79	7.80
100116	100167	H	744	8.35	68	8.15				449	1.42	2922						
100144	100200	C	669	7.31	87	9.97	488	1.35	1722	412	1.48	1871	431	1.43	1818	5.48	34.13	5.96
100147	100201	C	226	4.15	118	10.93	358	1.67	1894	270	1.39	2157	300	1.48	2064	3.81	35.33	6.76
100155	100212	C	372	4.30	109	10.52	295	2.01	1397	278	1.44	1811	293	1.44	1696	3.59	39.15	5.58
100155	100214	R	470	6.17	111	10.47	307	1.86	1334	295	1.48	1822	292	1.41	1521	3.71	38.43	4.99
100204	100278	C	518	9.06	114	12.12	429	1.17	1528	273	0.81	1849	327	0.93	1736	4.15	22.20	6.13
100204	100280	H	169	1.80	183	13.93				247	0.80	2026						
100223	100306	C	730	3.62	153	12.24	936	1.60	1987	481	1.32	2405	500	1.41	2298	6.35	33.66	7.45
100288	100392	C	298	3.40	155	12.79	369	1.97	2017	309	0.93	2324	329	1.15	2216	3.81	25.03	6.58
100519	101129	C	411	4.82	96	11.40	920	2.15	1938	429	1.12	2267	460	1.48	2011	5.84	35.33	6.67
100522	101145	C	184	1.23	117	13.89	364	1.77	2085	257	0.60	2700	294	1.00	2494	3.40	21.73	7.54
100152	100209	C	370	8.35	96	9.43	287	1.69	1572	280	2.11	1588	282	1.96	1582	3.27	42.67	4.85
100156	100215	C	164	2.32	198	12.92	330	1.58	2078	162	0.80	2496	220	1.07	2349	3.00	27.43	8.33
100231	100314	C	461	2.79	213	12.73	465	2.86	1388	421	0.79	2743	436	1.51	2268	5.95	38.72	8.03
100291	100340	C	308	3.40	190	12.34	327	1.53	1622	254	0.81	2127	279	1.06	1950	3.23	23.07	5.64
100339	100449	C	359	5.78	101	10.99	389	1.86	1704	302	1.22	2132	332	1.44	1992	3.85	31.34	5.74
100361	100497	C	264	3.39	141	12.12	310	1.15	1852	243	0.88	1917	266	0.97	1896	3.38	23.15	6.43
100393	100531	C	332	2.69	160	12.52	931	1.39	1412	249	0.91	1814	277	1.07	1673	3.78	27.43	6.00
100393	100532	H	387	5.71	151	11.87				321	0.90	2343						
100394	100533	C	196	2.09	206	13.07	236	1.15	1376	172	0.62	1596	194	0.80	1519	2.46	19.09	5.07
100409	100554	C	245	1.99	359	13.35	287	1.59	2365	210	0.46	2607	236	0.85	2522	2.99	20.25	8.17
100408	100634	R	239	0.44	494	13.90	333	1.85	1877	234	0.38	2114	266	0.89	2031	3.40	21.24	6.64
100427	100586	C	486	8.22	72	9.10	472	2.38	1567	384	1.79	1988	414	1.99	1840	4.80	43.32	5.39
100427	100587	H	300	3.23	175	12.23				305	1.13	2068						
100430	100593	C	201	1.46	222	13.47	281	1.37	1597	193	0.59	1672	223	0.86	1642	2.83	20.52	5.23
100438	100603	C	214	1.44	230	13.29	242	1.12	1116	190	0.50	1377	209	0.73	1285	2.41	19.45	3.80
100439	100606	C	551	7.06	115	9.7	904	2.04	1918	411	1.83	2283	443	1.90	2155	5.13	41.36	6.39
100442	100609	C	58	0.18	191	12.77	252	1.12	1135	185	0.27	1485	208	0.56	1362	2.16	10.94	3.64
100443	100629	C	240	0.38	222	13.83	317	1.31	1229	242	0.30	1460	268	0.65	1390	3.40	15.51	4.66
100524	101136	C	104	1.80	112	13.79	282	1.41	927	181	1.34	1100	216	1.36	1039	2.25	20.56	2.79
100038	100041	C	279	4.09	92	12.04	339	1.37	1463	266	1.26	1711	291	1.29	1624	3.70	30.79	5.87
100063	100068	C	292	3.69	120	12.49	302	1.44	1997	229	1.20	1798	254	1.28	1727	3.22	30.56	5.88
100069	100077	C	253	4.96	128	11.91	395	2.43	1147	262	1.43	1608	308	1.77	1446	3.91	42.25	4.94
100066	100099	C	241	3.38	129	12.36	337	1.62	1830	254	1.24	2158	283	1.24	2043	3.86	31.79	7.26
100068	100100	H	232	2.90	126	12.60				152	0.93	965						
100067	100101	C	679	10.97	57	7.97	673	2.90	1258	709	1.90	1860	696	2.25	1649	9.50	57.69	5.86
100069	100104	C	459	9.12	60	8.91	447	3.37	1320	384	2.96	1567	391	2.84	1467	5.36	72.83	5.19
100081	100121	C	288	5.94	106	10.98	406	2.90	1365	261	1.38	2035	311	1.87	1800	4.24	47.83	6.60
100102	100146	C	241	4.93	105	11.61	290	1.81	1284	212	1.23	1258	239	1.43	1267	3.03	34.13	4.20
100102	100147	H	307	4.93	115	11.74				266	1.23	1895						
100119	100170	C	315	7.13	89	10.27	344	2.12	1381	268	1.70	1596	294	1.84	1920	3.73	43.83	5.09
100127	100182	C	217	3.04	127	12.68	302	2.24	1309	203	0.93	2103	237	1.38	1856	3.23	35.30	6.68
100153	100210	C	371	8.62	86	9.06	381	2.01	1799	306	1.99	1919	332	1.99	1874	4.53	91.03	6.68
100153	100213	R	360	8.50	83	9.27	352	1.98	1740	304	1.95	1949	320	1.96	1875	4.37	90.26	6.63
100166	100230	C	243	5.76	100	11.23	290	1.45	1749	220	1.15	2109	241	1.29	1987	3.29	32.05	6.99
100201	100274	C	109	0.16	141	11.95	224	1.24	1813	179	0.28	2267	194	0.61	2108	2.64	15.63	8.02
100309	100419	C	150	0.15	232	13.74	276	0.52	2222	220	0.27	2357	240	0.36	2310	3.04	8.58	7.74
100308	100418	C	187	2.07	222	13.42	333	3.73	836	261	2.76	1055	286	3.10	978	3.92	80.32	3.50
100507	101040	C	146	0.12	148	13.59	260	0.58	2062	199	0.47	2211	220	0.50	2158	3.00	12.41	7.85
100510	101052	C	137	0.13	175	13.87	303	1.09	2292	194	0.24	2876	232	0.53	2671	3.16	13.58	9.79
100910	101093	H	145	0.11	494	13.20				211	0.24	3052						
100914	101069	C	218	1.89	168	13.63	322	1.05	2332	246	0.68	2731	272	0.80	2991	3.71	20.91	10.04
100020	100034	C	284	3.72	106	12.17	306	1.54	1318	237	1.64	1181	261	1.60	1228	3.76	43.33	4.76
100348	100543	C	234	1.79	212	13.42	298	1.99	1707	221	1.16	1411	408	1.43	1339	9.88	38.72	4.97
100352	100474	C	218	4.35	195	11.93	280	2.40	1055	170	1.54	1258	208	1.84	1186	3.00	49.83	4.44
100352	100488	P	133	3.83	237	12.23	238	2.46	898	152	1.51	1141	182	1.84	1055	2.62	49.83	4.06
100349	100495	C	294	6.80	98	10.37	357	4.73	291	229	2.81	768	273	3.48	681	3.93	94.26	2.34
100334	100519	C	391	10.35	91	9.66	337	3.00	838	270	2.99	748	291	2.92	779	4.22	79.09	2.88
100336	100521	C	222	3.55	159	12.61	295	1.21	1308	182	1.23	1257	207	1.22	1274	2.88	33.04	4.75
100994	100534	C	155	0.17	439	11.93	279	2.40	1164	183	0.69	1847	214	1.28	1807	3.11	34.67	6.08
100415	100567	C	148	1.45	195	13.13	245	2.23	757	198	1.26	917	188	1.59	880	2.71	43.06	3.32
100416	100568	C	275	4.65	181	11.26	310	2.49	1388	240	2.13	1584	271	2.29	1515	3.93	60.94	5.86
100418	100569	H	297	9.44	151	10.43				239	2.77	1201						
100418	100571	C	490	7.94	142	9.41	941	3.69	885	415	3.41	1037	459	3.90	983	6.62	94.80	3.80
100424	100581	C	227	3.06	203	12.24	344	2.31	1279	214	1.95	1336	259	1.81	1312	3.73	49.02	4.74
100429	100582	C	296	7.45	129	9.66	341	3.67	959	243	2.99	1188	277	3.22	1137	5.99	97.21	4.04
100424	100583	C	227	3.88	76	9.11	344	4.32	796	299	3.53	882	284	3.80	843	4.15	102.92	3.04
100429	100588	C	242	0.87	192	12.97	394	2.11	1186	292	0.49	1631	287	1.05	1475	3.92	28.92	5.04
100430	100623	C	987	7.18	96	9.71	473	3.29	942	334	1.53	1539	342	2.14	1327	9.21	94.88	4.87
100429	100624	H	245	3.93	120	11.77				298	1.16	1387						
100429	101232	C	267	5.44	103	11.17	990	7.67	95	298	3.82	516	342	9.03	348	6.91	139.83	1.39

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE 1 — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CO	NO	CO2	CYCLES 1-4 HC	CO	NO	CYCLES 6-7 HC	CO	NO	COMPOSITE HC	CO	NO	MASS EQUIVALENT HC	CO	NOXC
100328	101293	H	246	9.11	109	11.69				223	2.64	772						
100220	100303	C	66	0.18	270	13.59	179	1.14	1172	106	0.74	1415	131	0.88	1329	1.91	19.15	3.94
100247	100347	C	432	7.38	84	9.26	493	9.11	1315	309	2.09	1823	359	2.44	1645	4.16	53.12	4.73
100278	100378	C	298	4.17	115	11.52	284	2.43	1076	202	1.30	1404	230	1.69	1299	2.66	36.79	3.93
100330	100447	C	285	7.14	127	10.33	1307	2.30	949	1591	1.88	1062	1491	2.02	1022	17.29	43.98	3.09
100337	100456	C	625	10.30	30	8.57	388	2.65	1284	316	1.64	1818	341	1.99	1631	3.95	48.25	4.72
100337	100457	H	244	1.94	342	13.46				175	0.74	1898						
100355	100479	C	141	1.34	242	12.86	281	1.45	1492	191	0.39	1905	222	0.76	1756	2.87	16.54	5.28
100356	100480	C	456	11.38	45	7.29	389	3.18	1177	311	1.90	1722	338	2.34	1531	3.91	50.94	4.60
100356	100481	H	324	7.20	110	9.97				226	1.51	2006						
100370	100498	C	386	8.25	94	9.65	378	3.25	1243	292	1.35	1722	294	2.01	1554	3.43	43.76	4.88
100376	100506	C	187	3.98	120	12.05	209	2.37	839	123	0.86	951	153	1.38	911	1.77	30.04	2.70
100379	100507	H	226	4.11	127	12.29				153	0.81	1593						
100407	100553	C	161	8.68	65	8.24	339	2.97	887	244	1.86	1275	278	2.24	1139	3.22	48.68	3.37
100407	100562	R	377	7.78	89	8.83	403	3.33	1000	235	1.47	1489	291	2.12	1317	3.39	46.16	3.92
100422	100578	C	331	4.21	140	11.46	514	4.19	838	267	1.32	1471	351	2.32	1249	4.09	50.51	3.81
100422	100579	H	262	2.19	99	12.80				225	1.23	1060						
100434	100597	C	131	0.14	73	10.92	304	1.69	1068	191	0.37	1403	230	0.82	1285	2.66	17.85	3.72
100436	100599	C	295	5.39	104	10.21	317	3.98	803	253	3.33	887	275	3.55	857	2.83	68.65	2.25
100436	100600	H	212	5.24	107	10.05				234	4.95	465						
100443	100608	C	282	3.91	130	12.33	224	1.96	730	116	1.13	754	153	1.42	745	1.77	30.91	2.20
100443	100609	H	290	4.05	134	11.76				201	1.07	1349						
100452	100627	C	422	7.23	56	9.35	289	2.29	921	228	1.23	1095	249	1.60	1034	2.88	34.83	3.22
100533	101698	C	261	4.53	116	12.01	283	2.53	1175	186	1.42	1691	212	1.80	1510	2.45	39.11	4.61
100072	100108	C	400	8.66	54	8.94	296	2.82	1070	278	2.81	1096	284	2.81	1086	3.29	61.17	3.72
100344	100465	C	298	7.82	91	9.80	251	2.74	1244	192	1.39	1811	212	1.86	1612	2.69	44.40	5.22
100344	100466	H	290	6.06	107	10.86				213	1.18	2248						
100362	100489	C	214	5.23	119	11.23	267	3.22	842	193	1.78	1267	218	2.28	1105	2.77	54.43	3.75
100372	100500	C	245	3.74	128	12.46	225	1.93	1257	161	1.01	1324	183	1.19	1300	2.12	25.90	4.08
100377	100508	C	261	4.90	89	11.63	289	2.11	1395	230	1.07	1883	290	1.43	1708	2.89	31.13	5.07
100385	100519	C	243	6.06	107	10.75	275	2.99	1389	164	1.13	1948	202	1.78	1745	2.56	42.49	5.70
100385	100520	H	226	6.45	83	10.48				143	1.11	1467						
100390	100527	C	228	4.58	98	11.92	224	2.61	908	142	0.95	1301	170	1.53	1163	1.97	33.30	3.48
100395	100534	C	329	6.82	98	10.13	288	3.66	862	227	2.13	1382	248	2.65	1200	2.87	57.69	3.65
100395	100535	H	372	7.11	107	10.10	374	2.55	1431	366	1.91	1943	368	1.87	1763	4.26	40.71	5.25
100409	100555	C	120	0.98	208	13.41	217	1.99	1471	121	0.40	2154	154	0.95	1914	1.78	20.69	5.67
100409	100556	H	219	5.30	119	10.99				162	1.02	2169						
100410	100557	C	218	5.35	109	11.14	207	1.42	971	136	1.37	1103	160	1.45	1056	1.85	31.56	3.11
100410	100558	H	208	4.19	118	11.83				136	1.09	1323						
100413	100564	C	281	7.60	75	9.77	350	3.22	923	181	1.27	1381	240	1.95	1220	3.05	46.55	3.98
100413	100565	H	292	6.86	88	9.95				206	1.21	1818						
100419	100573	C	293	4.49	95	11.42	296	2.17	1114	215	0.84	1619	243	1.30	1442	2.81	28.30	4.41
100419	100574	H	301	4.30	111	11.51				241	0.83	2048						
100420	100575	C	260	5.01	102	11.15	351	3.05	1036	200	1.48	1408	252	2.02	1277	3.20	48.22	4.28
100420	100576	H	287	4.80	106	11.15				391	1.44	1956						
100421	100577	C	320	6.88	97	9.84	370	3.41	1139	259	1.92	1762	297	2.44	1543	3.44	53.14	4.73
100455	100630	C	286	5.79	107	10.99	573	4.80	997	292	3.36	754	390	3.79	685	4.52	82.51	2.04
100455	100631	H	587	5.95	94	10.53				321	3.46	1053						
100009	100015	C	360	7.74	85	9.57	479	2.80	779	274	2.15	926	344	2.37	874	4.37	58.58	3.09
100009	100016	H	1075	4.90	176	10.89				610	2.00	1594						
100011	100019	C	489	5.75	98	10.83	349	1.66	1948	294	0.94	2082	313	1.19	2035	3.62	25.90	6.40
100011	100020	H	423	5.10	114	11.19				272	1.04	1807						
100013	100023	C	220	4.00	190	11.94	221	1.14	1904	187	1.11	1941	198	1.12	1928	2.29	24.38	6.07
100014	100024	C	548	5.61	89	10.93	390	2.09	1806	360	1.38	2092	370	1.61	1991	4.70	38.43	7.44
100014	100025	H	358	3.16	184	12.41				257	1.12	1795						
100024	100039	C	467	8.11	64	8.78	454	2.02	1527	465	2.85	1318	481	2.55	1391	5.34	55.52	4.62
100024	100040	H	241	4.97	108	11.21				218	1.98	1415						
100029	100045	C	291	0.53	282	13.84	298	0.96	1404	266	0.38	1785	276	0.58	1651	3.76	14.87	6.31
100029	100046	H	411	1.51	268	13.48				337	0.71	2101						
100129	100184	C	303	7.01	95	10.71	346	3.00	1420	222	1.59	1815	265	2.08	1676	3.07	45.28	5.11
100145	100201	C	581	5.54	121	11.27	436	2.90	1383	352	1.98	1733	381	2.30	1610	4.84	54.91	5.29
100159	100220	C	289	2.66	212	12.87	330	1.78	1714	199	1.78	1707	244	1.78	1709	3.33	45.64	5.99
100159	100220	H	247	1.68	175	13.42				191	1.55	1529						
100179	100265	C	612	3.79	110	12.04	465	2.54	1629	392	1.10	1983	417	1.60	1859	5.29	38.12	6.14
100191	100257	C	456	3.36	118	11.88	376	1.94	1428	340	1.51	1554	352	1.62	1509	4.47	38.67	5.13
100237	100323	C	930	7.20	143	9.47	752	2.30	1539	657	1.92	1866	690	1.79	1751	8.77	42.73	5.88
100237	100324	H	568	3.89	190	11.75				398	1.00	1905						
100265	100392	C	467	7.17	88	9.88	478	2.36	1763	318	1.72	1872	387	1.94	1831	4.48	42.23	5.44
100311	100421	C	714	3.05	199	12.44	326	1.29	1217	291	0.96	1701	269	1.19	1591	3.11	38.03	4.70
100357	100442	C	941	8.25	103	9.06	639	2.07	1924	481	2.17	1927	523	2.13	1925	6.64	50.74	6.36
100437	100601	C	596	2.79	157	12.14	484	1.92	1569	414	0.83	2109	438	1.21	1919	5.56	28.88	6.24
100437	100602	H	394	1.62	381	12.96				321	0.72	1867						
100437	100617	H	378	1.34	382	12.77	391	1.96	1580	305	0.60	2016	335	1.07	1863	4.26	25.54	6.07
100503	100634	C	923	8.93	30	8.22	394	2.71	1280	376	1.64	1626	382	1.83	1504	4.42	39.84	4.60
100060	100061	C	1176	9.99	44	7.47	504	5.48	479	641	2.97	983	604	3.94	806	7.70	91.68	2.92
100060	100064	H	273	6.16	99	10.64				240	2.67	895						
100061	100065	C	412	4.73	114	11.79	337	1.48	1932	329	0.86	2284	329	1.07	2160	4.18	25.54	7.36
100061	100066	H	117	0.42	209	14.48				199	0.31	845						
100356	100085	C	644	8.76	73	9.16	516	2.02	1409	418	2.45	1429	452	2.29	1419	6.17	58.73	5.06
100084	100088	H	331	6.12	102	10.61				279	2.58	1282						

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 1 IDLE HC	CYCLE 1 IDLE CO	CYCLE 1 IDLE NO	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100363	100095	C	283	4.82	125 11.85	335	2.35	1304	296	1.22	1888	284	1.61	1753	3.61	38.63	5.76
100068	100102	C	461	6.11	119 10.24	536	3.76	774	599	2.46	1032	591	2.91	941	8.07	74.63	3.33
100068	100103	H	299	4.61	146 11.69				280	2.22	934						
100087	100128	C	237	5.06	124 11.65	272	2.49	1264	226	1.98	1425	242	2.15	1368	3.07	31.22	4.47
100093	100135	C	290	4.72	104 11.65	353	2.95	1297	249	0.99	2001	285	1.67	1754	3.62	39.86	5.77
100104	100149	C	276	5.57	97 10.36	492	5.03	939	305	3.27	727	356	3.88	661	4.12	84.67	2.00
100141	100197	C	365	6.10	108 11.13	559	3.96	1164	331	2.19	1506	413	2.80	1386	5.21	66.84	4.54
100144	100204	C	273	4.93	103 11.28	410	3.00	1033	285	2.06	1167	324	2.22	1120	4.48	82.54	4.00
100172	100237	C	299	7.80	94 9.56	470	4.97	393	277	5.65	297	344	5.76	330	4.69	147.72	1.15
100183	100249	C	533	8.89	79 9.16	394	1.72	1740	355	2.35	1719	354	2.12	1726	4.50	50.61	6.17
100192	100258	C	616	9.84	60 8.59	493	5.42	994	413	3.38	982	440	4.09	846	5.59	97.64	2.87
100198	100269	C	238	5.90	117 10.70	344	3.26	1159	237	2.39	1332	274	2.69	1271	3.74	68.98	4.51
100199	100271	H	212	4.06	108 10.41				166	2.06	888						
100199	100272	C	326	4.30	149 11.76	362	3.12	1495	267	1.65	1726	300	2.16	1631	3.81	51.36	5.48
100199	100275	R	282	4.21	118 11.99	351	2.96	1277	263	1.68	1599	293	2.12	1486	3.72	50.61	5.25
100211	100291	C	381	8.43	69 9.17	503	5.64	435	301	1.77	1665	371	3.12	1234	4.71	74.68	4.12
100909	101049	C	355	7.49	86 10.12	366	3.16	1017	271	1.95	1194	304	2.37	1132	3.86	58.58	3.63
100917	101116	C	256	3.61	135 11.82	302	3.06	677	219	1.75	961	245	2.41	861	3.11	57.53	2.83
100008	100009	C	319	7.89	75 9.31	310	3.22	1343	224	1.39	1893	254	2.03	1700	3.22	48.46	5.99
100008	100010	H	239	5.28	106 11.07				237	1.05	1925						
100053	100081	C	298	6.46	130 10.15	300	2.37	1689	266	1.24	2147	277	1.83	1986	3.78	41.79	7.36
100062	100093	C	662	11.47	47 7.13	452	4.29	1184	429	3.13	1508	437	3.53	1394	5.96	90.52	5.07
100062	100094	H	299	7.97	98 9.61				273	2.74	1547						
100131	100186	C	194	2.51	131 13.20	227	1.64	1403	163	0.57	1742	185	0.94	1623	2.35	22.44	5.35
100137	100193	C	281	5.73	106 10.94	282	2.43	1367	240	1.43	1637	254	1.77	1542	2.94	38.54	4.68
100151	100207	C	343	7.36	71 9.28	404	2.75	1765	359	1.48	2189	374	1.92	2040	4.75	45.84	6.83
100151	100208	H	190	4.23	115 11.92				181	1.03	2092				2.30	24.58	6.87
100215	100295	C	143	3.43	145 11.94	288	2.40	1657	125	1.02	2134	182	1.50	1967	2.31	35.80	6.58
100216	100296	C	394	8.07	74 7.70	255	2.37	2053	173	1.54	2557	201	1.83	2380	2.74	46.91	8.53
100216	100296	H	1900	9.31	100 8.58				2190	0.99	2142						
100235	100321	C	470	9.95	217 10.56	468	3.37	1255	383	1.14	2229	412	1.92	1888	5.23	45.84	6.34
100264	100356	C	399	7.68	84 9.29	636	7.09	174	407	6.09	218	487	6.43	202	5.66	139.99	0.60
100264	100357	H	235	4.31	130 11.57				228	1.32	1584						
100276	100376	C	222	7.53	29 9.77	178	1.25	1384	140	1.10	1366	154	1.16	1372	1.78	25.21	4.13
100280	100380	C	354	6.08	67 9.50	389	3.06	1198	322	1.57	1561	345	2.09	1433	4.38	49.89	4.79
100290	100341	H	193	2.30	230 12.78				214	0.94	1746						
100292	100383	C	429	7.92	78 8.99	473	4.77	845	329	1.73	1775	379	2.79	1444	4.81	66.60	4.84
100282	100384	H	229	3.60	112 11.61				223	1.24	1819						
100318	100430	C	463	6.86	66 10.21	471	2.80	1955	416	1.35	2191	435	1.86	1988	5.54	44.31	6.77
100375	100504	C	361	9.28	119 9.02	336	3.00	1369	286	1.57	2167	303	2.07	1887	3.51	45.06	5.61
100375	100505	H	178	3.23	187 12.46				180	0.93	1938						
100375	100515	R	191	4.54	172 12.01	251	2.41	1664	165	1.02	2187	195	1.50	2003	2.26	32.65	5.97
100531	101523	C	533	10.84	70 7.76	460	3.48	1142	434	4.02	988	443	3.83	1041	5.12	83.23	3.09
100001	100001	C	149	2.89	91 10.21	207	2.33	757	159	1.13	1102	175	1.54	981	2.02	33.52	3.16
100001	100002	H	121	3.06	49 10.53				138	1.29	861						
100030	100048	C	317	9.95	87 10.37	354	2.16	1228	252	1.40	1393	287	1.66	1333	3.92	42.57	5.10
100030	100049	H	215	2.69	149 12.76				196	0.90	1499				2.64	23.07	5.70
100247	100335	C	312	2.39	377 12.83	331	1.78	1154	301	1.53	1324	311	1.61	1264	4.24	41.28	4.41
100296	100404	C	366	6.12	110 10.73	299	2.43	1056	252	1.86	986	269	2.05	1010	3.60	48.96	3.38
100312	100422	C	243	3.52	146 12.31	311	2.97	1323	316	1.22	1841	315	1.83	1660	4.00	43.60	5.49
100324	100439	C	367	10.95	64 7.98	422	2.95	1250	353	2.63	1464	377	2.74	1389	4.79	65.41	4.52
100324	100440	H	323	8.49	96 9.12				273	2.62	1362						
100336	100455	C	203	1.48	238 13.52	319	2.21	1288	229	0.86	1495	260	1.33	1422	3.30	31.75	4.51
100346	100468	C	222	4.10	117 11.99	267	2.44	1052	206	1.46	1287	227	1.80	1204	2.88	42.97	3.89
100350	100472	C	497	6.72	126 11.28	430	3.56	1036	319	2.16	1381	343	2.64	1259	4.68	67.70	4.36
100365	100492	C	234	4.32	127 11.67	322	3.21	954	208	1.17	1602	247	1.88	1375	3.36	48.15	4.99
100378	100509	C	291	2.84	187 12.69	327	3.31	837	232	1.64	1050	265	2.22	975	3.61	56.93	3.41
100389	100526	C	176	1.97	190 13.73	274	2.72	1042	196	1.39	1289	222	1.85	1202	3.03	47.44	4.24
100389	100527	R	176	2.46	163 12.47	293	2.70	1129	187	1.48	1355	224	1.90	1275	3.05	48.72	4.55
100391	100528	C	187	3.47	64 10.66	229	1.73	1088	199	1.33	1203	206	1.46	1162	2.61	34.85	3.82
100400	100542	C	270	1.58	157 12.90	937	2.96	1044	499	1.84	1191	486	2.08	1114	6.63	93.33	3.90
100404	100429	C	382	9.89	91 10.55	392	2.01	1079	302	1.52	1184	333	1.69	1147	4.23	60.36	3.90
100004	100004	C	371	7.58	109 10.06	361	3.91	1004	285	2.12	1304	298	2.53	1199	3.65	55.08	3.71
100004	100007	H	298	6.28	117 10.90				224	2.02	1271						
100005	100017	C	246	2.69	224 12.51	332	2.79	1469	266	1.19	2132	289	1.74	1899	3.67	41.94	6.68
100005	100014	H	276	3.07	185 12.30				278	1.24	2049						
100115	100164	C	330	6.76	72 9.78	324	2.65	1698	265	1.93	1979	285	2.18	1880	3.62	52.04	6.37
100115	100165	H	269	4.65	141 11.25				242	1.68	2070						
100129	100179	C	225	0.65	376 13.24	259	0.91	1482	233	0.91	1700	242	0.84	1623	3.07	19.28	9.52
100129	100180	H	287	0.75	622 12.95				318	0.68	2425						
100171	100236	C	222	1.68	253 13.54	294	1.53	1673	209	0.66	2262	224	0.96	2055	2.84	22.91	6.75
100173	100238	C	233	4.82	123 11.60	264	2.99	1083	198	1.90	1359	221	2.28	1262	2.81	56.63	4.14
100218	100299	C	234	4.76	160 11.23	181	1.60	1926	169	1.38	1738	173	1.65	1593	2.00	31.56	4.80
100230	100319	C	395	6.80	133 10.60	380	2.54	1127	303	1.64	1561	322	1.94	1409	4.09	66.79	4.14
100234	100320	C	340	6.86	236 10.62	405	2.85	1387	319	2.16	1829	349	2.61	1674	4.43	57.53	5.61
100240	100327	C	263	1.77	309 13.67	344	2.32	1614	253	0.75	2199	285	1.32	1996	3.62	31.51	6.56
100247	100342	C	283	5.11	178 11.37	324	2.98	898	248	1.73	1300	274	2.20	1159	3.48	52.92	3.75
100247	100343	H	318	4.36	116 11.47				293	1.61	1565						
100272	100370	C	191	0.87	214 14.33	282	1.74	1588	188	0.68	2037	213	0.92	1879	2.70	21.96	6.15
100272	100371	H	147	0.55	215 14.11				149	0.61	1808						

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE 1 — PROCESSING DATE= 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CO	NO	CO2	CYCLES 1-6 HC	CO	NO	CYCLES 6-7 HC	CO	NO	COMPOSITE HC	CO	NO	MASS EQUIVALENT HC	CO	NOXC
100273	100372	C	608	8.21	99	9.58	356	2.87	1566	327	2.07	1935	338	2.34	1805	4.27	55.86	5.91
100273	100373	H	463	6.88	88	10.21				416	1.35	2191						
100279	100378	C	211	1.97	196	12.36	908	2.00	1694	259	0.86	2015	260	1.25	1888	3.30	29.83	6.32
100279	100379	R	190	2.06	249	13.11	330	2.64	1487	197	0.78	2183	243	1.36	2009	3.08	32.46	7.12
100447	100613	C	270	3.07	146	12.09	298	1.92	1016	237	0.81	1432	258	1.19	1286	2.99	25.90	3.81
100502	101035	C	119	1.12	296	13.21	157	1.31	695	88	0.39	865	112	0.71	792	1.29	15.65	2.41
100506	101041	C	197	2.24	207	13.66	290	1.87	1588	215	0.95	2005	241	1.27	1859	3.06	30.31	6.29
100516	101041	C	378	9.04	66	9.12	260	2.59	899	194	1.75	1197	210	2.04	1070	2.43	44.41	3.18
100516	101042	H	383	9.21	69	9.14				203	1.66	1290						
100019	100026	C	173	3.05	210	12.31	189	1.64	1502	166	1.20	1760	174	1.35	1656	2.37	34.61	6.66
										166	1.23	1883						
100015	100027	H	186	3.25	183	12.80				218	1.82	1416	227	2.08	1319	2.88	49.65	4.60
100023	100039	C	262	5.61	111	11.21	248	2.49	1141	229	1.34	1673	241	1.61	1539	3.29	41.28	5.87
100027	100044	C	226	4.56	114	11.44	264	2.12	1291	157	0.56	1560	185	1.15	1373	2.52	29.68	5.17
100069	100071	C	139	1.09	306	13.89	239	2.26	1027	152	0.46	1375						
100065	100072	H	151	0.62	406	13.98				200	1.40	1194	219	1.65	1107	2.99	42.31	4.10
100050	100078	C	209	4.98	120	11.46	247	2.13	947	198	1.35	1376	215	1.67	1237	2.73	39.86	4.18
100057	100087	C	251	4.57	123	11.64	247	2.27	985	176	1.31	1214	198	1.68	1099	2.70	43.08	3.95
100124	100178	C	203	3.48	127	12.31	241	2.38	858	298	1.70	1780	311	1.91	1694	4.24	48.98	6.19
100193	100259	C	342	5.53	115	10.78	337	2.32	1516	225	1.17	1722						
100193	100260	H	227	2.10	269	13.17												
100194	100261	C	355	5.13	131	11.19	308	2.71	1191	238	1.16	1899	262	1.70	1651	3.57	43.59	6.07
100194	100262	H	240	2.72	239	12.74				206	0.90	1690				2.78	23.07	6.21
100203	100278	C	236	3.37	165	12.36	291	2.10	1299	216	1.11	1904	242	1.65	1692	3.69	39.26	6.75
100214	100296	C	189	3.36	234	12.61	239	3.07	1206	167	1.01	1936	192	1.73	1680	2.62	44.36	5.94
100219	100301	C	209	4.12	155	11.68	213	2.39	1195	126	1.14	1669	155	1.57	1489	2.11	40.26	5.33
100233	100318	C	342	7.10	189	10.03	307	2.07	1298	335	1.54	1725	358	1.72	1575	4.86	44.10	5.85
100233	100319	H	361	3.68	250	11.86				279	1.11	1812						
100242	100329	C	353	2.92	323	12.60	439	2.16	1725	349	1.11	2398	379	1.47	2162	5.17	37.69	7.56
100293	100398	C	320	5.87	122	10.55	286	3.11	885	230	1.80	1310	249	2.25	1181	3.16	53.71	3.75
100293	100401	R	332	5.78	112	11.03	268	2.59	1000	250	1.66	1365	256	1.98	1256	3.25	47.26	4.20
100302	100411	C	263	2.13	193	13.21	320	2.33	997	246	0.85	1579	271	1.36	1375	3.44	32.46	4.61
100302	100412	H	212	1.78	217	13.46				191	0.62	1229						
100515	101064	C	275	5.68	112	11.23	304	2.50	1389	227	1.40	1935	253	1.78	1743	3.65	45.53	6.30
100515	101065	H	286	5.77	104	11.13				235	1.44	1934						
100525	101186	C	372	1.91	148	13.25	253	2.16	1135	232	0.76	1666	239	1.25	1480	3.25	31.97	5.26
100526	101190	C	185	4.55	105	11.56	266	2.99	1055	157	1.19	1450	195	1.81	1311	2.67	43.12	4.38
100010	100032	C	249	5.77	85	10.15	269	2.80	1123	214	1.38	1759	233	1.87	1536	3.18	47.95	5.63
100010	100033	H	339	3.94	195	11.74				272	1.09	2492						
100031	100090	C	366	8.23	92	9.18	364	3.32	1237	312	2.08	1927	331	2.51	1685	4.52	84.36	6.53
100134	100189	C	324	7.72	122	9.55	366	3.86	1307	296	2.46	1695	320	2.95	1559	4.37	75.65	5.56
100200	100288	C	163	1.22	151	12.66	243	2.47	1127	191	0.60	1747	202	1.25	1529	2.56	29.83	5.14
100241	100328	C	275	4.12	224	11.49	277	1.52	1091	219	1.01	1615	239	1.18	1491	3.26	30.25	5.19
100249	100337	C	443	9.00	81	8.37	437	3.82	1402	334	2.26	1090	356	2.80	1199	4.90	71.80	4.08
100249	100338	H	352	6.82	130	11.25				309	1.82	1917						
100253	100342	C	166	1.87	211	12.69	335	3.19	1296	212	0.71	2253	251	1.56	1918	3.45	40.00	6.53
100290	100395	C	286	7.48	93	9.40	324	3.80	1184	250	1.91	1727	275	2.57	1536	3.75	69.91	5.28
100316	100427	C	164	3.61	87	11.92	236	3.01	516	172	1.49	855	184	2.02	736	2.51	51.67	2.71
100314	100428	H	295	3.60	89	12.18				303	1.58	1408						
100335	100493	C	339	6.90	99	9.94	374	3.32	1363	293	1.88	1945	321	2.38	1741	4.38	61.03	5.94
100335	100494	H	284	4.41	147	11.36				224	1.43	1466						
100380	100512	C	313	4.45	119	11.40	422	3.83	1024	300	1.34	1666	342	2.21	1441	4.67	56.67	5.01
100380	100513	R	333	4.90	121	11.33	395	3.34	1391	311	1.43	2167	360	2.09	1895	4.64	53.59	6.65
100383	100517	C	328	7.33	83	10.18	309	4.25	906	294	3.91	939	292	4.02	927	3.98	103.09	3.25
100392	100529	C	623	9.22	59	8.87	456	4.21	1129	414	3.29	1058	429	3.61	1082	5.84	92.58	3.87
100392	100530	H	386	6.79	125	10.38				322	3.06	1336						
100449	100621	C	389	6.21	102	10.22	421	4.20	703	342	2.12	1197	369	2.84	1024	4.69	67.80	3.49
100449	100622	H	191	2.32	158	12.65				208	1.35	863						
100451	100625	C	176	2.86	139	12.39	230	3.22	333	163	1.26	940	184	1.94	867	2.36	46.31	1.58
100451	100626	H	232	2.75	79	12.39				239	1.30	933						
100527	101193	C	295	5.82	105	10.87	313	3.99	938	241	1.25	1193	266	2.20	1467	3.83	59.41	5.54
100021	100039	C	273	4.13	97	10.58	327	1.79	1484	240	1.47	1660	279	1.58	1585	3.43	37.64	5.61
100025	100041	C	211	4.77	101	11.60	365	2.21	1128	225	1.49	1497	286	1.98	1367	3.38	47.24	4.85
100064	100094	C	124	1.44	240	14.01	272	2.21	1018	190	0.85	1297	199	1.32	1193	1.97	31.91	3.94
100079	100112	C	275	6.82	86	10.21	426	2.15	1241	219	1.97	1324	291	2.03	1296	3.70	48.46	4.75
100094	100136	C	226	6.32	87	9.46	335	2.75	1267	222	1.93	1672	281	2.21	1530	3.58	58.67	5.41
100094	100137	C	116	1.75	235	13.58	223	2.41	1101	140	1.00	1511	169	1.49	1367	2.14	35.57	4.49
100113	100162	C	195	4.46	169	11.54	317	3.37	958	207	1.69	1361	245	2.27	1219	3.11	54.19	4.10
100123	100177	C	373	10.07	69	8.29	392	3.39	1159	276	2.38	1696	315	2.73	1376	4.01	65.14	4.65
100160	100222	C	69	1.75	233	13.24	185	3.06	973	89	1.17	1624	122	1.83	1396	1.55	43.69	4.55
100160	100223	H	114	4.23	102	11.28				121	1.57	1604						
100168	100232	C	56	0.19	296	12.66	117	1.17	1330	79	0.27	1620	92	0.58	1518	1.25	14.87	5.38
100175	100241	C	268	7.79	86	9.27	340	3.68	1083	218	2.36	1418	260	2.75	1300	3.55	70.52	4.59
100184	100250	C	170	5.01	125	11.47	296	3.66	891	179	1.92	1226	215	2.65	1109	2.73	58.68	3.95
100234	100322	C	216	2.69	206	12.52	386	3.05	1000	242	1.28	1411	282	1.89	1267	3.71	45.11	4.24
100244	100334	C	233	3.77	133	11.73	375	3.91	331	217	1.10	570	272	2.08	492	3.65	49.65	1.60
100245	100343	C	335	6.70	116	10.56	454	3.82	1059	318	2.46	1475	365	2.93	1329	4.84	69.95	4.69
100303	100385	C	169	2.29	153	12.65	301	2.86	1091	209	1.68	1292	241	2.09	1221	3.08	49.80	3.92
100303	100389	R	170	2.37	154	12.95	317	3.21	1057	196	1.61	1251	231	2.16	1183	2.93	51.56	3.76
100349	100494	C	376	8.08	81	9.16	448	3.53	985	291	1.98	1207	339	2.17	1127	4.83	95.84	4.18
100349	100497	H	200	4.93	129	11.28				181	1.58	1292						

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE 1 — PROCESSING DATE- 11/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100508	100137	C	261	6.01	91	10.97	318	3.20	1293	218	1.73	1646	254	2.27	1501	3.21	34.19	5.09
100092	100134	C	192	2.66	128	12.90	196	2.02	1431	146	0.90	1766	162	1.20	1648	2.21	33.08	5.82
100176	100242	C	153	3.80	129	12.12	216	2.11	1118	139	1.05	1468	150	1.46	1659	2.59	37.35	5.79
100247	100391	C	159	1.48	143	13.13	241	1.01	1216	162	0.63	1699	150	1.46	1659	2.59	37.35	5.79
100314	100424	C	432	4.61	116	11.39	294	1.50	691	298	1.05	1402	258	1.91	1153	3.54	48.86	4.11
100320	100433	C	638	5.55	64	9.19	300	4.35	552	320	2.08	1071	313	2.88	889	4.28	74.44	3.29
100332	100449	C	285	9.21	109	10.71	239	2.17	2054	208	1.23	2417	216	1.55	2289	2.93	39.75	8.11
100332	100450	H	187	3.74	136	11.87				160	1.02	1799						
100363	100466	C	216	3.22	149	12.05	219	1.19	1944	184	0.91	2182	194	1.00	2098	2.64	29.64	7.29
100363	100490	C	187	3.43	169	12.21	247	3.67	918	182	1.64	1556	204	2.35	1334	2.78	40.26	4.86
100366	100493	C	179	1.66	116	13.00	284	3.11	840	195	0.92	1573	224	1.66	1330	3.08	43.08	4.85
100371	100499	C	137	1.24	107	10.90	202	1.57	1027	146	0.64	1295	169	0.96	1201	2.25	24.61	4.44
100373	100501	C	148	2.23	192	12.94	217	2.07	1229	134	0.92	1523	163	1.63	1420	2.22	41.79	5.26
100378	100510	C	496	7.44	61	9.65	830	9.39	92	305	2.04	1345	488	4.61	892	6.66	118.22	3.12
100379	100511	H	287	5.34	98	11.52				259	1.96	1285						
100399	100540	C	213	5.82	129	10.64	211	2.21	1126	181	1.21	1505	178	1.55	1372	2.63	39.75	4.80
100449	100619	C	156	2.44	127	12.40	200	1.39	1169	150	0.70	1312	167	0.94	1261	2.28	24.10	4.42
100448	100620	R	143	2.53	128	12.69	222	2.18	926	146	1.03	1266	172	1.43	1147	2.34	36.58	4.19
100456	100632	C	136	1.75	112	12.31	231	3.19	999	145	0.65	1645	175	1.53	1418	2.39	39.23	4.99
100016	100028	C	239	3.82	157	12.03	228	2.43	1161	183	1.63	1321	198	1.90	1264	2.70	48.72	5.07
100018	100031	C	486	6.92	67	9.02	380	3.80	871	403	3.38	914	396	3.52	898	5.38	90.27	3.28
100042	100067	C	293	7.09	73	10.37	316	3.03	593	250	3.74	782	273	4.19	715	3.72	107.46	2.61
100070	100105	C	181	6.19	71	7.81	292	4.80	620	192	2.03	1204	227	2.99	999	3.10	76.67	3.53
100103	100148	C	149	3.94	142	12.53	266	4.26	734	168	1.62	1305	202	2.54	1105	2.75	65.13	3.95
100134	100191	C	233	4.21	115	11.86	286	3.26	1428	216	1.45	2052	240	2.08	1833	3.05	49.65	6.10
100136	100192	H	180	4.14	114	12.00				179	1.27	1713						
100154	100211	C	65	2.36	194	12.97	111	2.48	1585	70	0.97	1973	84	1.49	1837	1.14	38.21	6.96
100154	100214	R	139	2.98	151	12.79	137	2.65	952	97	1.03	1240	110	1.59	1139	1.90	40.77	4.02
100178	100244	C	269	4.45	90	9.37	326	3.91	1256	219	2.46	1489	256	2.82	1407	3.49	72.14	5.01
100185	100251	C	175	4.13	136	11.96	238	3.73	1104	148	1.19	1659	179	2.07	1466	2.44	53.08	5.63
100207	100289	C	216	5.99	116	10.90	290	4.54	804	199	2.07	1488	230	2.93	1248	2.92	69.95	4.15
100221	100304	C	511	11.12	116	8.33	336	4.26	946	261	3.57	1206	287	3.81	1115	3.92	97.70	3.89
100294	100363	C	442	6.80	171	9.98	336	2.45	1761	311	1.70	2131	319	1.96	2001	4.35	90.26	6.81
100300	100409	C	393	7.52	93	9.58	346	2.60	1428	263	1.81	1739	292	2.08	1630	3.98	93.33	5.87
100304	100414	C	214	6.32	111	10.69	242	2.60	999	213	2.78	990	223	2.72	993	3.04	69.58	3.58
100327	100444	C	132	0.95	202	13.61	214	2.00	1186	143	0.50	1606	167	1.02	1459	2.28	26.15	5.15
100329	101361	C	552	8.88	71	8.39	456	3.95	890	358	3.82	902	392	3.86	897	5.34	98.73	3.09
100329	101362	H	471	8.90	50	6.57				347	3.98	777						
100091	100133	C	169	0.70	207	13.29	231	2.35	1641	198	0.70	2279	209	1.27	2095	2.85	32.96	7.22
100098	100141	C	262	2.97	213	12.90	249	2.89	1331	203	0.77	2097	219	1.51	1828	2.99	38.72	6.53
100229	100309	C	574	8.86	108	9.78	403	2.96	1636	326	1.91	1947	352	2.13	1838	4.80	94.62	6.69
100229	100310	H	288	6.73	119	10.25				263	1.96	1558						
100259	100350	C	223	3.52	108	12.05	280	3.18	894	202	1.38	1169	229	2.01	1072	3.12	51.54	3.67
100261	100352	C	196	4.76	72	11.23	253	3.19	691	209	1.39	931	224	2.01	846	3.05	51.54	2.89
100262	100353	C	124	5.04	288	11.62	313	3.50	1580	124	1.63	2811	190	2.28	2380	2.59	58.47	8.19
100294	100399	C	164	2.54	185	12.44	280	2.45	1197	201	0.88	1497	228	1.42	1391	3.11	36.41	4.86
100296	100400	R	181	2.52	188	12.95	279	2.36	1164	210	1.02	1480	232	1.48	1369	3.16	37.95	4.92
100307	100417	C	361	5.67	119	10.90	383	3.63	1161	311	2.26	1448	329	2.74	1348	4.50	71.11	4.83
100319	100429	C	292	5.63	78	10.27	248	2.93	1223	220	2.16	1282	237	2.29	1261	3.13	59.34	4.68
100319	100426	H	221	6.17	73	11.84				220	2.38	1078						
100317	100429	C	334	5.97	87	10.61	363	3.21	1491	303	1.37	2240	324	2.02	1978	4.44	51.67	7.28
100323	100438	C	235	8.68	99	9.30	250	3.69	1106	190	2.17	1520	211	2.69	1375	2.88	68.98	4.80
100329	100446	C	401	4.36	102	11.93	319	2.39	1349	274	1.77	1406	289	1.98	1386	3.94	50.77	4.89
100331	100448	C	227	5.55	120	10.86	194	3.01	971	226	4.09	680	215	3.71	781	2.93	99.14	2.75
100341	100461	C	312	6.52	111	10.45	376	4.27	740	285	3.55	806	316	3.80	782	4.31	97.45	2.71
100341	100462	H	223	6.02	116	11.03				222	3.67	743						
100360	100486	C	223	3.94	123	10.90	255	2.35	1314	211	1.72	1389	226	1.94	1362	3.08	49.75	4.96
100532	101670	C	440	7.77	79	8.89	290	2.58	1295	276	2.12	1406	280	2.28	1367	3.81	98.32	4.95
100532	101671	H	445	7.22	69	9.14				283	2.01	1382						
100049	100130	C	142	3.04	130	11.37	230	1.41	2276	185	1.57	2031	200	1.91	2116	2.88	40.89	7.83
100157	100217	C	84	1.35	112	11.17	234	1.16	1991	141	0.73	2168	173	0.88	2092	2.49	23.83	7.83
100157	100218	H	45	1.90	78	11.15				91	0.79	2048						
100189	100255	C	73	1.24	93	10.75	148	0.42	2043	127	0.49	2015	134	0.48	2024	1.93	12.99	7.93
100227	100312	C	248	2.99	203	10.18	418	2.26	1528	291	1.38	1896	334	1.68	1695	4.86	45.50	6.35
100245	100333	C	193	0.98	414	11.13	276	1.55	2086	222	0.85	2384	260	1.09	2279	3.66	29.51	8.41
100291	100396	C	116	1.94	126	10.49	235	1.86	1506	173	1.44	1630	196	1.51	1586	2.79	40.89	5.83
100313	100423	C	106	2.44	64	10.83	179	1.84	1361	131	1.01	1652	144	1.30	1543	2.13	35.11	5.83
100340	100460	C	92	1.59	126	11.46	146	2.16	667	89	0.76	1043	108	1.25	906	1.55	33.85	3.31
100345	100467	C	107	2.91	116	11.25	189	2.21	926	106	0.99	1200	133	1.41	1103	1.91	38.18	4.09
100351	100473	C	96	2.79	94	11.19	219	2.14	1613	158	1.11	2010	179	1.47	1871	2.58	39.81	7.01
100167	100494	C	73	2.30	100	11.53	191	2.30	1247	122	0.96	1538	146	1.62	1436	2.10	38.69	5.60
100167	100502	R	62	2.32	97	11.91	171	2.32	1218	114	0.99	1592	136	1.45	1481	1.96	39.26	5.60
100197	100538	C	95	1.27	144	10.67	216	1.97	1716	146	1.27	1918	170	1.37	1587	2.45	37.10	5.88
100406	100548	C	85	2.96	66	11.56	223	1.82	1643	134	1.76	1610	165	1.78	1498	2.37	48.21	5.49
100411	100559	C	130	2.03	87	10.96	299	1.97	1385	191	1.04	1605	214	1.36	1527	3.08	36.83	5.66
100423	100580	C	99	1.06	131	11.20	221	1.96	1537	158	0.67	1933	180	1.07	1796	2.59	28.97	6.55
100006	100011	C	176	4.17	103	12.02	365	2.19	1601	247	1.27	1570	284	1.57	1580	1.85	19.02	2.81
100006	100012	H	291	4.61	90	11.53				279	1.44	1692						
100010	100013	C	124	3.78	118	12.36	289	2.25	1784	164	1.37	1420	209	1.67	1830	1.35	20.23	3.21
100010	100014	H	139	3.47	74	12.42				181	1.42	1066						

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE 1 — PROCESSING DATE- 03/27/72

			-----CYCLE 7 IDLE-----			---CYCLES 1-4---			---CYCLES 6-7---			---COMPOSITE----			--MASS EQUIVALENT--		
CAR NO	RUN NO	S	HC	CO	NO CO2	HC	CO	NO	HC	CO	NO	HC	CO	NO	HC	CO	NOXC
100034	100094	C	159	3.73	121 12.12	243	2.10	1816	166	1.46	1767	192	1.68	1784	1.37	22.64	3.63
100095	100093	C	197	3.77	106 11.75	200	1.34	2149	160	1.51	1762	174	1.45	1897	1.25	19.53	3.70
100077	100115	C	174	3.31	90 12.18	362	2.09	1745	297	1.15	1738	317	1.47	1740	2.05	17.81	3.25
100100	100143	C	327	6.46	102 10.05	735	4.02	1086	451	3.53	978	550	3.70	1015	3.56	44.83	1.72
100100	100144	H	493	8.56	86 9.67				444	3.63	1159						
100109	100155	C	176	3.16	110 10.08	342	2.45	1919	236	2.23	1707	273	2.30	1781	1.76	27.87	3.08
100109	100156	H	316	6.23	66 7.23				371	2.38	1523						
100118	100149	C	89	2.87	172 13.92	232	1.90	1730	145	1.10	1779	175	1.38	1761	1.12	16.72	3.04
100126	100191	C	307	4.38	99 11.72	536	1.68	1839	426	1.25	1722	464	1.33	1762	2.99	16.10	2.99
100146	100202	C	117	0.44	154 14.10	652	2.61	1606	347	1.78	1471	453	2.07	1518	2.92	25.08	2.52
100158	100219	C	611	9.38	76 9.13	460	3.08	1896	302	2.71	1718	357	2.83	1780	2.30	34.29	2.97
100164	100227	C	172	3.90	143 11.95	307	2.20	1868	236	1.64	1849	260	1.83	1859	1.67	22.17	3.09
100164	100228	H	196	4.21	94 11.68				338	1.70	1782						
100165	100229	C	213	3.15	161 12.42	450	2.70	1833	299	1.45	1861	351	1.88	1851	2.26	22.77	3.07
100181	100247	C	247	3.35	119 12.39	338	2.36	1782	238	2.37	1540	273	2.36	1624	1.76	28.59	2.70
100182	100265	C	144	3.70	161 12.06	223	1.75	1846	151	1.26	1758	174	1.43	1788	1.26	19.27	3.42
100182	100266	R	183	2.34	179 12.79	222	1.69	1873	186	1.04	1811	198	1.26	1832	1.42	16.98	3.39
100500	100888	C	131	1.85	78 9.89	491	1.80	1436	447	1.66	1161	462	1.70	1296	2.98	20.59	2.17
100500	100889	H	208	3.26	89 12.23				457	1.52	2189						
100504	101039	C	149	3.13	93 11.73	417	2.11	1784	304	1.56	1675	343	1.75	1713	2.21	21.20	2.94
100513	101058	C	478	1.78	72 7.88	822	2.76	1266	780	2.12	1159	794	2.34	1196	5.12	28.35	2.13
100139	100195	C	285	6.18	99 10.50	337	3.23	1064	250	3.27	917	280	3.25	968	2.22	48.42	2.00
100196	100264	C	303	2.59	90 11.12	269	1.04	1387	212	1.40	1311	231	1.27	1337	1.83	18.91	2.83
100200	100273	C	234	0.23	128 12.27	465	0.62	1693	224	0.35	1365	308	0.44	1479	2.71	7.28	3.45
100205	100281	C	284	1.60	116 13.01	391	1.52	1009	218	1.03	1151	278	1.20	1101	2.20	17.87	2.39
100205	100282	R	259	1.93	93 12.75	319	1.63	994	291	1.37	986	294	1.46	984	2.33	21.75	2.04
100228	100313	C	268	1.04	132 13.38	289	0.51	1344	253	0.57	1326	265	0.54	1332	2.10	8.04	2.73
100229	100314	C	133	0.89	160 12.05	256	0.52	2271	187	0.33	2144	211	0.39	2188	1.67	5.80	4.50
100258	100349	C	570	5.14	106 10.45	280	1.60	1409	300	1.96	1144	293	1.83	1236	2.32	27.26	2.43
100269	100366	C	533	3.22	86 11.36	339	0.68	1199	286	0.52	1058	325	0.57	1107	2.57	8.49	2.24
100269	100367	H	451	0.31	72 11.83				240	0.59	896						
100270	100368	C	137	1.85	161 13.07	204	0.86	2549	153	0.76	2302	170	0.79	2388	1.50	13.09	5.40
100271	100369	C	152	0.21	118 12.74	222	0.63	2296	167	0.27	2215	186	0.39	2243	1.64	6.46	5.08
100283	100386	C	298	4.08	100 10.75	312	1.11	2524	269	1.33	2202	284	1.05	2314	2.25	15.64	5.11
100299	100407	C	241	1.29	90 11.71	246	1.11	1451	200	0.64	1432	216	0.80	1438	1.71	11.91	3.01
100299	100408	H	302	1.97	93 11.50				201	1.14	1482						
100301	100410	C	340	1.71	92 12.96	299	1.70	768	296	1.63	649	271	1.65	690	2.15	24.58	1.44
100319	100420	C	140	1.05	140 13.79	296	1.07	2225	176	0.61	2304	218	0.77	2277	1.92	12.75	5.29
100374	100503	C	2534	2.66	116 11.75	360	1.99	795	669	2.25	644	598	2.15	696	4.42	31.99	1.62

TABLE B-2

Kansas City

Phase II

189<

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE II — PROCESSING DATE- 03/27/72

			-----CYCLE 7 IDLE-----				---CYCLES 1-4---			---CYCLES 6-7---			---COMPOSITE---			--MASS EQUIVALENT--		
CAR NO	RUN NO	S	HC	CO	NO	CO2	HC	CO	NO	HC	CO	NO	HC	CO	NO	HC	CO	NOXC
100106	200640	C	364	7.88	64	9.39	542	3.52	594	323	2.61	910	399	2.92	799	3.09	50.75	2.39
100150	201533	C	330	1.43	871	13.05	291	1.06	1926	240	0.51	2476	257	0.70	2283	2.97	15.20	6.82
100150	201541	R	372	1.18	1401	13.37	274	0.79	2071	247	0.39	2672	256	0.52	2461	2.96	11.29	7.28
100210	200634	C	329	7.14		9.85	586	4.28	628	457	5.44	375	502	5.03	463	4.64	87.43	1.38
100238	200675	C	115	0.25	295	13.74	239	0.59	1221	212	0.36	1601	221	0.44	1467	2.56	9.57	5.69
100244	200946	C	122	1.59	179	13.55	308	1.53	1449	239	1.06	1807	263	1.22	1681	2.43	21.20	4.24
100250	200956	C	287	5.32	106	11.38	370	1.59	1760	305	1.56	2011	327	1.57	1923	3.36	30.36	5.74
100252	200967	C	399	4.31	83	8.76	978	3.88	631	480	3.86	699	654	3.86	675	6.05	67.09	1.67
100252	200968	H	331	3.90	106	10.95				549	3.94	751						
100401	200635	C	360	6.42	87	10.48	314	1.91	1907	286	1.88	2045	295	1.89	1996	3.04	36.55	6.65
100403	200650	C	249	2.59	257	12.70	318	1.18	2280	284	0.69	3162	295	0.86	2853	3.42	18.72	9.58
100406	200638	C	663	7.08	91	9.99	831	1.67	1356	674	1.81	1502	728	1.76	1450	6.74	30.39	4.35
100412	200647	C	173	0.41	756	13.83	281	2.34	1201	243	2.67	978	255	2.55	1056	2.63	49.31	3.36
100417	200633	C	254	3.51	105	12.34	378	1.70	1667	313	1.32	1766	335	1.45	1731	3.45	28.04	5.76
100435	201170	C	195	0.34	373	14.35	263	1.89	1295	224	1.37	1598	237	1.55	1491	2.74	33.68	4.46
100052	200636	C	139	0.09	903	13.17	201	0.43	2771	156	0.60	2531	171	0.54	2614	1.76	10.43	8.73
100169	201131	C	303	5.17	131	11.31	366	2.82	2142	209	0.93	3220	263	1.59	2842	2.70	30.74	7.64
100202	200652	C	252	3.78	134	11.39	320	2.79	1373	219	1.35	1924	254	1.85	1731	2.61	35.77	5.46
100224	200637	C	163	2.14	150	13.22	262	1.79	1317	228	1.11	1676	239	1.34	1550	2.49	26.21	5.23
100248	200852	C	230	2.99	151	12.87	387	2.65	1674	211	0.76	2483	272	1.42	2199	2.80	27.45	6.10
100263	200644	C	327	0.78	140	13.90	[illegible]	2.33	950	343	0.53	1260	359	1.15	1151	4.16	25.03	4.68
100274	201587	C	208	7.02	109	10.08	512	3.60	1000	255	2.11	1696	344	2.63	1452	3.18	45.71	3.60
100274	201590	H	214	7.07	95	9.99				238	2.09	1652						
100274	201599	R	209	7.01	111	10.18	528	3.49	1219	240	1.99	1913	340	2.51	1670	3.14	43.56	3.96
100284	200789	C	228	2.12	209	12.28	299	1.42	1673	198	0.56	1898	227	0.86	1819	2.35	16.62	6.17
100286	200643	C	698	9.92	83	8.21	908	3.11	1121	540	3.69	996	665	3.48	1039	6.18	60.49	3.37
100325	201429	C	337	6.19	186	10.61	280	1.65	2229	245	1.35	2268	257	1.45	2254	2.64	27.99	6.00
100325	201442	H	307	5.90	110	10.63				231	1.31	2782						
100325	201441	R	326	6.30	132	10.43	276	1.36	2661	236	1.33	2744	250	1.34	2714	2.57	25.87	7.39
100326	200649	C	158	1.35	296	13.88	369	1.40	1774	307	0.86	1967	328	1.04	1899	3.03	18.07	5.08
100358	200645	C	236	4.22	82	9.61	307	3.11	920	215	1.20	1403	247	1.86	1233	2.54	35.96	4.65
100012	200796	C	234	2.10	133	13.47	306	1.87	1077	241	1.16	1514	263	1.40	1361	3.04	30.47	5.20
100036	200651	C	185	2.17	124	13.15	306	1.90	1441	221	1.05	2116	250	1.34	1879	3.18	32.00	7.32
100051	200691	C	236	4.79	79	11.51	389	2.13	836	251	2.15	767	299	2.14	791	3.11	41.87	2.78
100059	200786	C	293	4.48	102	11.56	355	2.57	1375	249	1.16	2290	285	1.65	1969	3.63	39.39	8.28
100120	200901	C	337	2.58	240	12.95	381	2.68	884	342	3.05	828	355	2.92	847	4.51	69.71	3.36
100128	200642	C	244	2.46	100	12.72	405	2.44	1198	314	1.44	1825	345	1.79	1605	4.38	42.73	7.16
100132	200646	C	536	7.55	84	9.8[illegible]	325	2.40	1482	307	2.06	1771	313	2.17	1669	3.62	47.24	5.99
100162	200850	C	236	6.70	103	10.23	387	4.13	8[illegible]	241	2.07	1661	292	2.79	1363	3.38	60.74	5.13
100170	200777	C	265	4.49	105	11.00	397	2.72	920	325	1.73	1609	350	2.07	1367	4.45	49.41	5.65
100196	200863	C	363	9.09	64	8.77	430	2.74	1092	293	1.77	1755	349	2.10	1522	4.32	50.13	5.87
100188	200858	C	608	3.92	185	12.30	674	2.39	1802	358	1.31	2342	468	1.68	2153	5.42	36.57	7.28
100188	200859	H	312	3.02	235	12.59				205	1.11	864						
100188	200860	R	305	3.29	179	12.79	445	2.13	1064	245	1.37	1356	314	1.63	1253	3.64	35.48	4.48
100520	201475	C	354	8.50	72	9.16	442	3.50	1480	311	2.38	2185	356	2.77	1938	4.85	70.85	6.74
100033	200785	C	176	2.86	87	11.91	397	1.28	1157	308	1.01	1867	339	1.10	1618	4.63	28.21	7.31
100047	200790	C	309	6.98	72	9.78	338	3.05	1217	280	2.59	1652	300	2.75	1499	4.09	70.52	6.74
100056	200928	C	109	1.41	107	13.79	224	0.99	1333	180	0.76	1399	195	0.84	1375	2.66	21.54	5.26
100085	200818	C	313	8.09	64	9.48	462	5.88	212	316	4.58	541	367	5.03	425	4.66	120.04	1.69
100090	200653	C	340	7.40	79	10.05	381	2.68	2010	285	2.74	2064	318	2.71	2045	4.34	69.49	8.53
100099	200641	C	981	8.03	69	[illegible]	786	4.45	917	591	4.46	990	659	4.45	964	9.00	114.12	4.62
100117	200853	C	135	3.38	97	12.15	245	1.47	1524	182	1.14	1760	204	1.25	1677	2.59	29.83	6.54
100133	200787	C	151	1.13	172	12.56	270	1.31	1553	236	1.13	1737	247	1.19	1672	3.37	30.51	7.56
100167	200795	C	292	4.24	85	11.23	441	2.19	1232	309	1.71	1634	355	1.87	1493	4.51	44.64	6.25
100174	200798	C	126	3.31	214	11.77	216	1.95	947	169	1.54	1262	185	1.68	1151	2.66	45.50	5.46
100222	201156	C	165	3.42	92	11.82	491	4.43	979	210	1.66	1600	308	2.62	1382	4.19	67.01	4.87
100289	200907	C	272	5.23	84	10.67	1182	1.23	1108	273	1.29	1853	591	1.26	1592	8.07	32.30	7.11
100289	200908	R	328	5.55	124	10.34	792	1.62	936	316	1.46	1807	479	1.51	1502	6.54	38.72	5.82
100101	200899	C	281	6.40	76	10.60	299	1.77	1475	246	1.80	1930	264	1.78	1770	3.96	50.18	8.29
100197	200902	C	690	10.38	74	6.73	650	4.17	848	630	3.90	1056	637	3.99	983	8.70	102.32	4.17
100197	200903	H	194	3.39	98	11.95				204	1.27	1757						
100226	200658	C	406	7.05	78	9.61	398	3.87	912	322	2.65	1332	345	3.07	1185	4.71	78.73	4.79
100240	200806	C	89	0.11	95	12.94	221	2.48	773	193	1.25	1241	202	1.75	1077	2.56	41.78	4.46
100260	200817	R	120	0.16	251	13.61	239	2.51	891	180	1.50	1332	200	1.85	1177	2.56	44.16	4.76
100266	200656	C	1136	8.24	62	7.69	547	6.11	338	644	3.71	958	613	4.54	741	7.75	108.38	2.78
100277	200794	C	262	6.22	99	10.80	296	2.11	1352	245	1.78	1746	262	1.89	1608	3.57	48.46	7.20
100295	200659	C	327	3.42	79	11.00	651	2.78	296	496	2.66	364	559	2.70	340	6.98	64.43	1.29
100306	200809	C	351	4.08	64	10.00	299	3.77	560	292	2.57	955	294	2.98	816	3.73	71.14	3.41
100321	200805	C	138	0.19	146	12.71	249	1.22	1539	219	0.57	2002	227	0.79	1839	3.30	21.39	8.64
100342	200807	C	225	6.08	79	9.25	359	4.26	646	270	3.55	828	301	3.79	829	4.11	97.19	3.68
100342	200808	H	173	2.64	109	11.99				220	1.34	1345						
100441	200813	C	319	4.86	79	10.85	1435	6.25	332	350	4.24	516	729	4.95	451	9.25	117.92	1.84
100441	200814	H	256	3.38	94	12.24				331	3.90	671						
100142	200856	C	140	2.28	173	13.79	235	0.90	1879	155	0.76	2033	172	0.90	1879	1.77	15.46	[illegible]
100187	200654	C	207	1.63	230	14.01	301	1.13	1627	237	0.51	1975	25[illegible]	0.72	1851	2.66	11.01	[illegible]
100213	200857	C	265	7.04	88	10.52	265	1.24	2741	220	1.25	2399	235	1.24	2363	2.72	24.09	[illegible]
100239	200667	C	265	6.54	112	10.47	289	1.97	1090	249	2.37	1149	263	2.23	1119	2.71	63.10	[illegible]
100299	200661	C	[illegible]	4.39	166	12.16	261	1.0[illegible]	1921	230	1.03	2201	[illegible]	1.04	2092	2.47	20.11	[illegible]
100292	2008[illegible]	C	273	5.11	259	11.93	316	2.07	1566	239	1.14	2167	265	1.46	1956	2.72	28.23	[illegible]
100322	200854	C	201	4.85	78	11.81	373	5.44	479	273	5.10	456	[illegible]	5.21	445	3.19	[illegible]	[illegible]

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE II — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 2 HC	CYCLE 2 CO	IDLE NO	IDLE CO2	CYCLES 3-5 HC	CYCLES 3-5 CO	CYCLES 3-5 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
190322	200845	H	155	2.92	245	13.33				220	4.94	493						
190328	200803	C	376	5.93	107	11.08	389	2.24	1636	310	1.47	2003	351	1.73	1874	4.09	37.66	7.07
190349	200909	C	235	3.68	109	12.34	291	1.34	2002	217	0.43	2067	242	1.00	2324	2.80	21.77	7.69
190364	200943	C	61	0.22	125	13.90	299	1.57	1917	195	0.48	2062	231	1.12	1998	2.38	21.63	5.92
190381	201149	C	283	5.08	107	10.45	288	1.51	2591	233	1.09	2972	252	1.23	2838	2.59	23.74	7.74
190391	201150	R	271	5.63	113	11.27	275	1.44	2570	243	1.01	3203	254	1.16	2984	2.61	22.39	7.92
190433	200655	C	296	6.04	101	10.44	513	6.22	196	389	5.72	261	432	5.89	238	5.00	128.23	0.84
190501	201514	C	281	4.95	119	11.89	448	7.99	118	352	7.66	119	385	7.77	118	6.45	168.86	0.35
190501	201517	H	264	4.54	120	12.00				349	7.51	120						
190334	200854	C	218	3.57	149	12.72	1038	3.96	1229	272	2.67	1390	540	3.12	1333	5.56	60.33	4.42
190382	200845	C	309	0.39	392	14.23	347	0.94	1894	259	0.38	2206	289	0.57	2082	2.97	11.02	6.90
190387	200697	C	300	2.80	134	12.91	377	1.40	1063	267	1.10	1220	305	1.20	1165	3.14	23.20	4.00
190389	200875	C	279	2.81	140	13.10	396	1.09	1746	276	0.78	1859	314	0.88	1819	3.27	17.31	5.30
190388	200880	R	377	3.19	131	12.90	368	0.99	1690	291	0.85	1836	317	0.89	1784	3.26	17.20	5.30
190398	200804	C	150	2.14	274	13.17	227	0.79	2188	195	0.62	2687	206	0.67	2505	2.12	12.95	8.41
190405	201075	C	89	1.65	136	14.11	370	2.56	988	251	1.79	1127	292	2.05	1078	2.70	39.63	2.58
190414	200731	C	184	2.03	148	13.56	258	0.71	1609	231	0.53	2060	240	0.59	2007	2.47	11.40	6.86
190429	200695	C	293	7.12	102	10.08	790	2.96	944	229	1.56	1572	421	2.00	1352	4.33	38.67	4.64
190431	200962	C	144	3.31	116	12.88	358	4.14	556	215	2.88	724	269	3.32	665	2.45	57.70	1.74
190431	200963	H	80	1.32	133	14.17				190	2.35	754						
190432	200906	C	239	3.43	164	12.34	382	1.03	2410	250	0.72	2906	299	0.82	2732	3.07	15.85	9.20
190444	200704	C	67	0.46	144	13.72	280	1.23	1323	259	0.97	1588	266	1.06	1495	2.46	18.42	4.60
190446	200795	C	105	0.10	234	13.23	251	0.32	2105	218	0.15	2470	229	0.20	2342	2.35	3.86	8.01
190447	200869	C	141	0.84	137	13.68	265	1.43	1568	195	0.35	2040	219	0.72	1874	2.29	13.91	6.31
190508	201483	C	983	7.21	94	10.05	568	1.90	1820	508	2.17	1807	526	2.07	1811	4.17	30.80	3.75
190017	200691	C	767	3.30	132	12.32	519	0.57	1566	581	0.56	1637	546	0.58	1605	6.94	13.36	6.88
190017	200682	H	303	0.08	180	12.56				565	0.17	1175						
190037	200690	C	332	6.41	97	10.41	351	1.27	1837	319	1.06	2433	333	1.13	2224	3.82	24.61	6.74
190058	200870	C	269	3.11	91	11.02	670	1.96	461	217	0.90	622	379	1.27	565	4.34	27.64	2.14
190065	200798	C	238	4.54	76	11.30	312	1.18	1442	288	1.11	1858	296	1.13	1712	3.43	24.60	6.75
190071	200814	C	131	0.35	187	14.30	292	0.88	1432	259	0.95	1503	267	0.92	1478	3.39	21.96	5.98
190069	200821	C	261	3.81	140	12.14	377	1.57	2290	330	0.86	2801	344	1.10	2622	4.01	23.94	9.06
190116	200684	C	323	5.11	128	11.37	396	1.34	1701	343	0.99	2239	361	1.11	2058	4.59	26.50	8.76
190144	200810	C	814	7.91	77	9.14	593	1.45	1566	593	2.05	1452	589	1.83	1491	7.49	43.69	6.19
190144	200811	H	640	3.94	147	12.07				484	1.23	1598						
190147	200802	C	248	5.26	70	11.94	311	2.00	1498	256	1.70	1751	273	1.80	1658	3.67	42.97	6.86
190155	200820	C	430	5.84	97	10.79	359	1.50	1492	327	2.10	1395	339	1.89	1414	4.29	45.11	5.35
190159	200822	R	419	7.17	75	10.18	353	1.52	1489	294	1.72	1567	314	1.65	1539	3.99	39.39	5.93
190204	200815	C	143	0.60	209	12.91	298	0.62	1867	258	0.48	1761	272	0.52	1798	3.65	12.41	7.26
190223	200867	C	773	4.29	112	11.99	1199	1.63	1596	608	1.14	1935	817	1.31	1816	10.34	31.26	7.54
190223	200868	H	775	4.69	92	11.64				642	1.30	1822				8.16	31.02	7.52
190288	200732	C	388	6.70	77	9.94	385	2.53	1063	349	1.58	1752	361	1.91	1910	4.18	41.58	5.79
190519	201529	C	898	9.74	91	10.51	498	4.22	796	483	1.65	1801	484	2.34	1449	6.14	60.50	4.88
190522	201527	C	183	1.57	105	13.78	361	1.23	1586	272	0.66	1957	313	0.85	1826	3.58	18.47	5.61
190152	200731	C	307	1.45	126	13.70	297	0.91	1058	296	0.57	1722	296	0.68	1689	3.63	14.80	5.71
190156	200699	C	389	5.20	108	11.51	1002	1.77	975	315	1.15	1519	355	1.36	1329	7.57	34.86	6.02
190156	200700	H	317	4.44	122	11.91				290	1.02	1381						
190291	200845	C	248	2.19	114	13.46	418	4.31	905	292	0.69	1977	313	1.89	1601	3.59	41.14	5.96
190339	200944	C	319	6.18	86	10.65	346	1.96	1210	273	1.23	1756	294	1.48	1584	3.65	32.22	4.94
190361	200837	C	268	3.26	107	12.53	299	0.78	1760	275	0.64	2037	283	0.68	1940	3.59	16.23	7.96
190393	200735	C	361	3.58	110	12.42	272	0.73	1667	297	0.79	1878	288	0.76	1804	3.93	19.48	8.06
190427	200749	C	310	5.51	95	11.00	321	1.38	1477	291	1.32	2008	301	1.34	1822	3.49	29.17	6.88
190438	200911	C	387	8.34	89	9.64	424	1.43	1294	340	1.64	1566	369	1.63	1470	4.27	35.48	5.47
190439	200714	C	347	5.73	153	11.98	431	1.44	1761	418	1.29	2004	422	1.34	1911	4.89	29.17	7.55
190442	200838	C	256	1.35	87	13.99	553	1.53	873	417	0.74	1123	464	1.01	1035	4.83	19.76	3.29
190442	200839	H	205	0.57	90	14.07				313	0.91	1515						
190453	200866	C	258	1.72	160	13.67	315	1.05	1503	251	0.50	1861	273	0.69	1735	3.67	16.46	7.21
190524	201432	C	55	0.22	157	14.10	203	0.58	1357	166	0.39	1312	174	0.45	1327	1.85	8.79	3.37
190524	201435	H	46	0.14	242	13.75				144	0.40	1390						
190524	201434	R	90	0.22	228	14.16	227	0.72	1136	174	0.52	1321	192	0.59	1256	2.00	11.54	3.46
190038	200947	C	246	5.11	84	11.92	329	1.46	1681	230	1.33	1806	264	1.37	1762	3.35	32.70	6.11
190043	200784	C	248	3.82	84	12.35	391	1.25	1724	255	1.38	1742	271	1.33	1735	3.44	31.75	7.30
190049	200933	C	275	5.21	109	11.54	427	2.94	1115	278	1.45	1572	330	1.94	1412	4.19	46.31	4.94
190066	200873	C	211	3.76	77	12.58	351	1.39	1292	185	0.72	1448	243	0.95	1393	3.31	24.36	6.22
190049	200874	C	306	5.85	95	11.36	559	2.60	1248	275	1.33	1697	374	1.77	1539	5.10	45.39	6.87
190091	200715	C	373	7.67	68	9.15	412	2.93	1083	348	2.89	1078	370	2.90	1079	5.05	74.36	5.01
190102	200923	C	300	5.41	105	11.17	344	1.55	1487	264	1.42	1951	292	1.46	1858	3.71	34.85	7.14
190119	200921	C	282	5.83	93	11.17	313	1.21	2034	269	1.31	1957	284	1.27	1918	3.61	30.31	6.94
190127	200706	C	252	4.11	95	11.98	286	1.14	1435	238	1.25	1581	254	1.21	1529	3.46	31.03	7.13
190153	200709	C	296	5.72	66	10.31	326	1.89	1000	273	1.53	1125	291	1.58	1081	3.97	40.51	5.04
190166	200812	C	244	4.49	101	12.03	205	1.27	1369	178	1.11	1363	187	1.16	1365	2.55	24.74	5.98
190201	200758	C	122	0.10	215	12.47	282	1.14	1792	227	0.24	2321	244	0.55	2135	3.36	14.10	9.54
190305	200719	C	149	0.15	191	12.90	336	0.65	1525	252	0.25	1833	291	0.31	1725	3.57	7.39	7.92
190308	200750	C	151	1.19	137	13.49	313	0.14	780	241	2.12	1151	246	2.48	1021	3.63	63.60	4.91
190507	201573	C	121	0.13	159	13.41	212	0.75	1951	181	0.30	2012	191	0.45	1990	2.60	11.50	7.18
190507	201574	H	208	0.08	140	13.34				221	0.27	1916						
190510	201534	C	284	10.53	63	8.42	419	7.71	1711	222	2.19	2115	230	2.37	1973	3.95	60.42	6.94
190510	201544	H	383	9.78	74	8.89				257	1.99	2245						
190519	201545	R	397	10.49	57	9.45	388	9.44	1878	279	2.20	2110	317	2.28	2028	4.31	58.32	7.08
190520	200725	C	344	8.14	73	10.59	315	7.17	960	298	2.67	759	353	2.49	829	4.37	67.44	4.32

COLD AND HOT START TEST DATA KANSAS CITY, PHASE II PROCESSING DATE- 03/27/72

CAR NO	HUM NO	S	CYCLE 7 IDLE				CYCLES 1-6			CYCLES 6-7			COMPOSITE			MASS EQUIVALENT		
			HC	CO	NO	CO2	HC	CO	NO	HC	CO	NO	HC	CO	NO	HC	CO	NOX
190352	200961	C	343	7.80	73	9.91	310	2.86	823	219	1.90	1156	250	2.23	1039	3.40	60.40	3.9?
190352	200962	R	322	7.75	78	9.61	282	2.77	832	221	2.28	1097	242	2.45	978	3.49	66.35	3.86
100386	200713	C	369	8.91	74	8.82	313	2.80	789	270	2.59	789	285	2.92	788	4.11	68.25	3.87
100386	200826	C	277	4.18	128	11.88	170	1.15	678	149	1.29	722	156	1.24	706	2.25	33.58	3.0?
100415	200740	C	97	0.40	207	13.47	157	1.12	673	125	0.84	809	136	0.93	761	1.96	25.18	3.54
100416	201033	C	187	3.79	147	12.47	293	2.34	1456	216	1.89	1471	240	2.04	1465	3.46	55.25	5.97
100418	200677	C	672	7.57	77	9.65	480	3.07	953	400	2.60	1109	429	2.76	1056	6.17	74.75	5.1?
100424	200971	C	260	4.17	197	12.30	326	2.75	1050	279	1.83	1116	262	2.15	1095	3.77	58.23	4.2?
190425	200835	C	330	7.89	173	9.33	333	3.19	1151	269	2.67	1479	291	2.85	1364	4.19	77.19	6.05
100426	200799	C	290	4.50	108	11.56	323	3.70	770	242	2.71	1125	270	3.05	1000	3.89	82.61	4.74
190428	200836	C	195	1.37	169	12.96	252	0.82	1484	233	0.60	1644	239	0.67	1588	3.26	17.10	6.08
100450	200827	C	293	5.32	123	11.13	283	2.77	1056	224	1.39	1674	244	1.85	1457	3.33	47.44	5.63
190257	200657	C	296	5.36	95	11.21	338	2.67	792	270	2.14	1129	293	2.32	1011	3.39	50.51	3.46
190278	200672	C	277	3.44	138	12.58	278	1.80	1209	212	0.71	1756	235	1.09	1564	2.72	23.69	5.93
100337	200992	C	387	5.54	106	11.29	461	3.34	1017	250	1.22	1752	323	1.96	1494	3.74	42.67	4.55
100356	201157	C	256	2.70	146	13.08	269	2.29	1364	167	0.52	1768	202	1.13	1626	2.33	24.55	4.8?
100370	200927	C	230	3.18	100	12.85	282	3.38	780	168	0.84	1225	207	1.72	1069	2.40	37.44	3.52
100407	200925	C	126	9.55	53	7.61	1253	6.16	320	938	5.22	536	983	5.54	460	11.40	120.61	1.55
100407	200926	R	534	10.77	51	6.93	739	5.25	684	413	4.79	851	527	4.95	792	6.11	107.77	2.64
190422	200662	C	404	6.99	91	10.20	469	4.85	442	306	3.00	851	362	3.64	707	4.19	79.25	2.54
100434	200663	C	116	0.14	212	13.29	441	2.22	750	171	0.53	1113	265	1.12	985	3.07	24.38	3.56
100436	200932	C	287	3.50	136	12.28	354	3.67	775	271	2.66	1131	300	3.01	1006	3.09	58.12	2.85
100443	200996	C	361	8.60	69	9.07	291	2.80	691	169	1.61	912	211	2.02	836	2.44	43.98	2.59
100452	200969	.	323	10.81	61	8.29	346	2.93	890	255	1.49	1197	286	1.99	1089	3.31	43.32	3.35
100319	200683	C	329	4.08	121	10.61	343	2.22	1074	191	0.84	1607	244	1.32	1420	2.82	28.73	5.57
100344	200670	C	335	7.05	70	10.15	281	2.31	944	204	1.37	1384	230	1.69	1230	2.92	40.34	5.11
190362	200666	C	140	0.88	272	14.13	271	2.11	652	171	0.93	986	205	1.34	869	2.60	31.98	3.57
100372	200678	C	300	5.40	82	10.94	221	1.35	925	180	1.26	1182	194	1.29	1092	2.24	28.08	4.25
100377	200668	C	245	2.18	163	12.51	310	1.33	1513	243	0.61	2285	266	0.93	2014	3.08	20.24	7.6?
190385	200900	C	242	4.03	101	12.34	179	1.98	769	95	0.71	888	124	1.19	846	1.57	27.45	3.35
100390	200669	C	221	4.03	115	11.76	236	2.60	628	126	0.93	997	164	1.51	867	1.90	32.87	3.26
100410	200917	C	149	0.10	267	12.66	282	1.63	992	268	0.19	1378	277	0.69	1239	3.15	15.01	4.61
100413	201148	C	261	5.63	99	11.08	292	2.91	1247	166	1.73	1650	210	2.14	1508	2.66	50.97	5.09
100419	200676	C	308	5.70	106	10.93	262	1.74	648	180	0.99	938	208	1.25	836	2.41	27.21	3.24
100420	200660	C	297	7.10	99	10.20	273	3.00	788	195	1.61	1078	222	2.09	976	2.82	49.89	3.85
100421	201596	C	193	2.66	118	13.10	246	2.35	1312	170	0.56	2171	196	1.18	1870	2.26	25.63	5.93
100421	201597	R	196	2.56	113	13.29	234	2.19	1476	175	0.62	2049	195	1.16	1849	2.25	25.20	5.4?
100455	200671	C	187	1.11	185	13.70	471	2.99	695	850	1.19	1124	327	1.81	973	3.79	39.40	3.67
100009	200924	C	220	0.80	419	9.81	956	1.36	1280	855	1.22	982	890	1.26	1086	11.31	30.07	3.99
100011	200734	C	430	3.87	151	11.99	333	1.70	1118	274	0.99	1423	294	1.17	1316	3.40	25.46	5.04
100013	200904	C	246	6.58	90	10.91	316	3.76	955	224	2.94	1127	256	3.22	1066	2.96	70.10	3.83
100014	200910	C	606	7.42	37	9.56	445	2.35	1537	383	1.64	1826	404	1.88	1724	5.13	44.88	6.08
100028	200727	C	435	1.89	277	12.88	412	1.34	1751	368	1.02	2097	383	1.13	1975	5.23	28.97	9.74
100129	200912	C	424	10.36	40	8.37	567	3.90	1020	305	2.39	1350	396	2.94	1234	4.59	63.35	4.5?
100145	200718	C	403	1.42	214	13.25	421	1.52	1927	368	1.17	1674	386	1.29	1622	4.90	30.79	7.45
190179	201630	C	726	8.18	67	8.11	609	2.77	1686	537	2.04	2019	562	2.29	1902	7.13	54.55	6.54
190179	201631	R	756	8.88	76	8.97	635	3.07	1948	526	1.74	2169	564	2.20	1951	7.15	52.40	6.63
100191	200725	C	716	5.03	38	11.05	504	2.67	899	472	2.00	1054	483	2.16	999	6.14	51.56	4.61
100191	200726	H	248	2.20	148	12.95				199	1.39	807						
100237	200735	C	430	4.63	104	11.60	354	1.51	1324	330	1.23	1613	340	1.32	1511	4.32	31.51	6.23
100243	201000	C	343	4.60	113	11.38	465	2.61	1353	317	1.46	1693	368	1.86	1573	4.26	40.49	4.86
100311	200733	C	481	5.29	155	12.15	437	2.94	990	415	1.21	1215	422	1.81	1101	4.89	39.40	4.21
100357	200721	C	973	8.68	83	8.79	797	2.06	1758	724	2.66	1526	749	2.45	1607	9.52	58.48	7.41
100357	200722	H	429	3.33	148	12.94				361	2.03	1277						
100437	200717	C	519	4.39	59	9.78	438	1.46	1375	403	1.17	1679	415	1.27	1572	5.27	30.31	7.21
100040	200979	C	1576	10.44	65	7.62	670	4.36	669	667	3.25	753	668	3.63	723	8.49	86.66	2.7?
100040	200980	H	2377	5.35	88	9.27				2381	2.41	759						
100041	200738	C	318	4.88	104	11.48	317	2.11	1042	246	0.93	1390	270	1.36	1268	3.43	31.98	5.22
100054	200741	C	236	7.80	120	9.26	786	2.29	1140	603	2.75	1074	667	2.58	1097	9.11	66.16	4.85
100094	200742	H	357	5.52	78	10.91				318	2.07	1244						
100063	200744	C	283	3.88	132	11.96	347	1.14	1602	291	1.00	1826	310	1.04	1747	3.94	24.82	7.21
100068	200739	C	323	4.82	90	11.09	348	2.83	673	312	2.25	795	324	2.45	752	4.42	62.82	3.33
100087	200728	C	1084	0.91	140	10.77	880	1.97	920	946	1.48	1057	915	1.65	1009	11.63	39.39	4.29
100104	200752	C	422	10.36	72	7.56	482	6.04	279	420	6.19	313	441	6.13	301	5.11	133.46	1.13
100104	200753	H	295	5.75	84	10.44				381	4.62	479						
100141	200913	C	418	7.12	78	10.25	607	5.33	819	409	2.87	1167	499	3.73	1045	6.34	89.05	4.25
100141	200914	H	264	1.69	113	13.79				385	1.90	1256						
190148	200736	C	382	7.93	70	9.19	421	4.41	602	349	4.11	739	374	4.21	691	5.10	107.97	3.05
190148	200737	H	236	1.19	125	13.45				332	3.00	985						
190172	200916	C	514	10.04	57	8.60	572	3.64	681	382	3.36	780	448	3.45	745	6.11	88.47	3.26
100192	200930	C	327	8.50	76	9.66	375	4.19	649	282	3.08	792	314	3.46	741	3.99	82.60	2.64
190192	200931	H	165	1.27	150	14.69				219	1.55	925						
190198	200824	C	316	6.17	78	10.13	312	3.56	519	264	3.06	568	280	3.23	550	3.82	82.03	2.22
190199	200871	C	269	3.81	96	12.36	306	3.94	768	271	1.95	1119	311	2.50	996	3.95	59.69	4.13
190199	200872	R	288	4.25	83	12.15	395	3.47	773	278	2.07	1093	315	2.55	980	4.00	60.88	4.07
130211	200937	C	405	7.90	68	9.38	601	7.61	96?	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.34
130211	200938	H	276	3.95	124	11.82				299	5.79	133						
100509	201940	C	301	5.72	99	11.70	342	7.92	1029	296	1.74	1357	284	2.15	1242	3.60	51.21	4.02
100517	201306	C	275	3.84	124	12.10	393	?.93	783	293	2.83	966	314	3.07	971	3.98	73.12	3.11
190009	200761	C	486	8.79	115	8.49	395	2.35	2071	388	1.74	2393	386	1.95	2280	4.91	46.56	9.4?

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE II — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 HC	CYCLE 7 CO	IDLE CO2	CYCLES 1-6 HC	CYCLES 1-6 CO	CYCLES 1-6 NO	CYCLES 4-7 HC	CYCLES 4-7 CO	CYCLES 4-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100093	200956	C	362	8.65	94 9.16	465	4.71	793	320	2.07	1374	370	2.99	1170	5.05	76.67	4.68
100062	200745	C	369	9.44	76 8.47	375	5.42	652	282	3.71	948	314	4.30	844	4.28	110.27	3.73
100062	200746	H	177	1.79	207 13.67				234	1.95	1326						
100131	200747	C	242	4.14	88 12.14	231	1.78	1277	180	0.82	1040	197	1.15	1512	2.90	27.45	6.23
100151	200936	C	423	7.72	69 9.70	348	2.39	1814	325	1.33	2184	333	1.67	2054	4.23	39.86	6.95
100218	200771	C	274	4.22	124 11.65	387	4.64	620	273	1.75	1396	312	2.76	1124	3.96	65.89	4.68
100216	200748	C	793	9.37	87 9.07	277	1.21	1869	455	1.27	2113	392	1.24	2027	5.35	31.79	8.98
100235	200764	C	282	4.82	183 11.21	324	2.42	1640	245	0.97	2022	272	1.54	2278	3.45	36.76	9.60
100280	200756	C	244	4.01	169 11.66	298	2.56	1100	235	1.28	1464	257	1.72	1336	3.26	41.05	5.55
100282	201609	C	277	4.62	97 10.86	417	4.73	785	256	1.47	1731	312	2.61	1399	3.95	62.17	4.54
100282	201610	R	240	5.65	98 10.30	396	4.90	774	256	2.10	1525	305	3.08	1262	3.86	73.36	4.12
100318	200770	C	373	5.78	99 10.49	449	4.30	767	354	1.67	1607	387	2.59	1312	4.92	61.83	5.66
100296	200749	C	382	9.18	131 11.09	365	2.00	1115	274	1.37	1501	305	1.59	1365	3.87	37.95	5.62
100336	200985	C	191	1.65	179 13.36	358	2.20	1170	270	0.65	1794	300	1.19	1575	3.81	28.61	5.39
100346	200751	C	274	4.59	79 11.08	303	2.21	1221	267	1.75	1376	279	1.91	1321	3.54	45.60	5.44
100350	200769	C	572	4.43	136 11.98	423	4.06	566	358	2.83	932	380	3.26	796	5.19	83.60	3.52
100365	200776	C	293	5.15	84 11.02	325	2.32	890	261	1.54	1109	283	1.81	1032	3.86	66.61	4.58
100389	200789	C	258	3.53	254 12.60	303	2.01	1026	260	2.08	1206	275	2.05	1142	3.75	52.57	5.15
100389	200792	R	261	3.21	99 13.61	288	1.91	982	254	1.79	1172	265	1.83	1098	3.61	46.93	4.92
100391	200832	C	177	2.88	81 10.49	230	2.03	725	170	1.48	644	191	1.67	672	2.42	39.86	2.61
100400	200981	C	221	4.26	132 12.18	437	3.30	690	286	2.42	975	338	2.72	875	4.61	69.75	3.52
100004	201664	C	171	0.31	314 14.06	224	2.30	1538	171	0.83	2094	189	1.36	1899	2.18	29.11	5.92
100005	200960	C	215	3.89	123 12.38	279	2.79	1226	210	1.44	1694	234	1.91	1530	2.97	45.65	5.64
100125	200955	C	196	1.68	242 13.24	292	2.37	920	219	0.97	1339	244	1.45	1192	3.10	34.61	4.39
100173	200982	C	915	6.11	100 10.89	276	2.49	1188	236	1.66	1783	250	1.95	1576	3.17	45.84	5.37
100218	200692	C	585	8.56	64 9.03	345	2.10	882	320	2.11	1213	328	2.10	1097	3.80	62.72	4.28
100230	200716	C	395	5.84	89 10.44	313	2.39	982	259	1.83	1239	277	2.02	1114	3.52	48.22	4.81
100240	200905	C	210	4.19	103 11.51	684	1.36	846	186	1.27	1240	360	1.30	1102	4.57	31.03	4.32
100267	200765	C	327	5.52	141 10.69	323	2.47	1126	285	1.94	1576	298	2.12	1418	3.78	50.61	5.85
100272	200974	C	210	2.13	157 13.36	254	1.71	1496	195	0.63	1935	215	1.00	1781	2.73	23.87	5.80
100273	200702	C	297	4.31	116 11.89	268	1.52	1107	242	1.32	1289	291	1.39	1225	3.19	33.18	5.17
100279	200959	C	212	2.04	172 13.38	288	2.23	1611	214	0.85	2019	239	1.33	1876	3.03	31.75	7.23
100497	200696	C	319	4.40	81 11.77	288	1.50	853	273	1.12	1266	279	1.25	1121	3.22	27.21	4.35
100502	201243	C	219	4.58	149 11.54	159	2.28	752	118	1.34	963	132	1.66	876	1.52	36.07	2.62
100506	201479	C	184	1.17	322 14.35	263	1.43	1777	198	0.94	2183	220	0.85	2040	2.79	20.24	6.67
100506	201480	R	188	1.23	304 14.39	269	1.71	1430	192	0.62	1840	218	1.07	1696	2.76	25.49	5.61
100015	200757	C	260	4.22	178 11.85	274	2.26	1305	248	1.94	1439	257	2.05	1522	3.51	52.57	6.80
100023	200939	C	228	4.89	108 11.24	242	1.73	1152	189	1.32	1455	207	1.46	1331	2.63	34.85	4.50
100045	200844	C	244	1.67	234 13.20	259	1.42	1146	224	0.70	1592	236	0.95	1439	3.22	24.36	6.12
100193	200797	C	257	3.61	111 11.87	262	1.28	1160	260	1.63	1244	260	1.50	1214	3.55	38.46	5.45
100194	200754	C	336	4.79	103 11.37	293	2.53	796	254	1.37	1261	267	1.77	1098	3.64	45.39	4.90
100214	200760	C	226	3.64	185 12.00	230	2.01	800	182	1.13	1228	199	1.43	1078	2.70	36.66	4.80
100219	200759	C	246	4.23	236 11.55	229	1.36	1147	213	1.04	1757	218	1.15	1563	2.87	29.48	6.88
100242	200935	C	218	3.55	171 12.60	251	2.14	1435	207	1.30	1886	222	1.59	1728	3.03	40.77	6.28
100302	200886	C	263	4.27	115 12.18	276	1.92	907	221	0.97	1290	240	1.30	1155	3.05	31.03	4.25
100515	201329	C	297	6.50	121 10.82	292	2.70	1346	229	1.61	2072	248	1.99	1817	3.38	50.40	6.91
100525	201547	C	608	2.55	173 11.74	271	1.61	1150	256	0.85	1468	281	1.11	1356	3.55	28.39	4.69
100526	201561	C	158	3.14	86 7.24	238	2.32	1350	195	1.68	1964	210	1.90	1480	2.66	45.26	5.09
100526	201567	R	192	4.58	143 11.14	219	2.09	1220	158	1.43	1918	179	1.97	1673	2.07	42.81	5.15
100031	200689	C	270	5.38	102 10.94	327	2.19	977	315	1.77	1927	319	1.90	1334	4.35	48.72	6.17
100134	200949	C	370	10.17	72 8.39	385	3.37	1299	305	2.29	1817	325	2.66	1635	4.43	66.21	5.98
100209	200961	C	173	2.45	115 12.99	242	2.18	1068	189	0.75	1597	207	1.25	1411	2.63	29.83	5.08
100241	200705	C	217	5.24	83 11.09	171	0.91	1346	173	1.11	1473	172	1.03	1428	2.34	26.41	6.50
100290	200918	C	1066	10.78	63 7.23	504	4.64	1039	539	3.00	1501	528	3.57	1337	7.18	91.55	5.84
100290	200919	H	305	6.79	60 9.74				301	2.74	1233						
100335	200973	C	355	6.76	84 11.02	349	3.40	998	292	2.05	1448	311	2.52	1289	4.24	64.62	4.50
100380	200695	C	370	2.09	87 12.55	597	2.33	1158	369	0.89	1740	448	1.39	1536	6.11	35.64	7.01
100392	200685	C	370	6.68	103 10.98	382	2.88	1012	385	3.20	950	383	3.08	971	5.23	78.98	4.43
100451	201615	C	182	1.72	149 13.17	301	3.45	1045	238	1.52	1357	260	2.19	1247	3.29	52.17	4.03
100451	201614	R	183	1.62	124 13.23	308	3.49	969	286	1.48	1476	294	2.18	1298	3.71	52.16	4.10
100527	201345	C	233	3.84	115 12.52	278	2.90	936	214	0.76	1976	234	1.50	1612	3.39	40.50	5.92
100021	200885	C	283	7.88	50 9.86	335	1.97	1012	238	1.99	1090	271	1.98	1062	3.44	47.26	3.91
100044	200964	C	266	5.27	102 11.44	267	2.31	1169	188	1.44	1374	215	1.76	1302	2.73	41.54	5.50
100094	200778	C	242	3.42	125 11.49	312	1.71	821	244	1.25	1138	267	1.61	1027	3.64	36.15	4.56
100095	200922	C	237	5.48	105 11.47	382	3.32	1040	239	1.72	1428	289	2.28	1292	3.67	54.63	4.68
100113	200895	C	232	5.01	89 11.68	323	3.78	819	222	2.00	1232	257	2.62	1087	3.26	62.54	4.24
100123	200894	C	269	7.19	75 10.93	323	3.04	1065	222	2.05	1254	257	2.39	1187	3.26	57.06	4.62
100140	200965	C	166	2.95	160 13.13	295	2.59	998	182	1.39	1167	221	1.73	1072	2.81	41.30	3.80
100175	200891	C	223	5.89	62 8.50	328	2.78	873	199	1.95	1077	244	2.24	1005	3.33	57.44	4.21
100184	200762	C	237	5.37	241 11.68	280	2.78	878	223	2.03	1301	242	2.29	1152	3.07	54.67	4.75
100234	200769	C	384	4.85	112 10.10	418	3.76	878	324	2.29	1320	356	2.90	1165	4.52	66.84	4.85
100289	200780	C	404	7.69	65 9.65	448	4.36	633	383	3.34	882	405	3.69	794	5.15	88.09	3.29
100289	200781	H	190	0.79	154 13.52				341	2.05	1099						
100303	200940	C	162	1.40	131 12.41	383	2.84	1087	174	1.44	1371	219	1.96	1271	2.78	44.40	4.30
100303	200945	R	171	1.61	165 12.72	267	2.65	1066	179	1.43	1448	209	1.85	1313	2.65	46.14	4.59
100369	200920	C	191	3.63	95 12.53	304	2.46	891	200	1.24	1108	236	1.46	1092	3.22	42.57	3.95
100505	201511	C	289	4.89	104 10.65	382	4.05	1032	222	1.96	1445	264	2.49	1430	3.35	64.07	4.66
100092	200707	C	191	2.77	94 12.63	209	1.23	1212	191	1.04	1543	187	1.10	1437	2.98	28.21	6.66
100174	200887	C	240	4.48	91 10.95	256	2.17	1316	184	1.18	1740	209	1.52	1590	2.85	38.97	6.30
100287	200970	C	152	2.47	119 12.92	229	2.59	1037	154	1.16	1993	181	1.64	1268	2.67	42.57	4.67

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE II — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	-CYCLE 7 IDLE- HC	CO	NO	CO2	-CYCLES 1-6- HC	CO	NO	-CYCLES 6-7- HC	CO	NO	-COMPOSITE- HC	CO	NO	--MASS EQUIVALENT-- HC	CO	NOXC
100314	200893	C	421	8.90	53	8.45	314	2.64	1008	312	1.88	1480	312	2.14	1314	4.26	54.88	5.49
100320	200894	C	800	8.85	89	7.67	720	3.95	499	1007	3.86	662	906	3.89	604	12.37	99.76	2.76
100343	200712	C	298	5.26	63	10.51	242	1.29	1502	208	1.28	1663	219	1.28	1606	2.99	32.82	7.49
100363	200791	C	319	6.10	61	9.62	274	2.13	1398	242	2.14	1552	253	2.13	1498	3.45	54.62	6.74
100366	200820	C	200	2.97	94	13.13	291	4.11	834	193	1.44	1521	227	2.37	1280	3.10	60.78	5.60
100371	200879	C	106	0.76	75	10.95	144	0.44	1390	139	0.71	1498	147	0.61	1456	2.00	15.63	5.74
100373	201594	C	207	5.27	95	10.93	358	6.99	148	205	5.34	260	254	5.91	220	3.51	191.18	0.77
100373	201602	H	210	4.68	95	11.13				201	4.88	303						
100373	201601	R	213	5.80	99	10.64	314	7.03	149	202	5.40	264	241	5.97	223	3.28	152.71	0.78
100379	200879	C	361	7.15	87	10.17	415	7.56	95	364	7.62	99	381	7.59	97	5.20	194.65	0.39
100399	200892	C	236	9.60	76	10.32	195	1.15	1094	170	1.19	1232	178	1.14	1183	2.43	29.23	4.71
100419	200826	C	679	6.70	95	9.07	396	6.44	497	474	3.79	503	443	4.01	500	6.05	102.84	2.05
100419	200825	H	372	4.90	81	10.49				342	3.99	446						
100442	200951	C	283	6.83	87	10.[illegible]	367	5.27	484	298	3.84	655	322	4.34	595	4.39	111.30	2.12
100442	200952	H	263	6.99	111	10.26				278	4.11	598						
100470	200889	C	3122	10.79	109	6.98	629	4.34	840	1042	3.18	1195	897	3.58	1070	12.25	91.81	4.24
100470	200890	H	469	1.57	98	12.30				439	1.60	1510						
100103	200831	C	165	3.26	98	11.65	259	2.73	918	213	2.08	1184	229	2.30	1090	3.12	58.98	4.58
100154	200773	C	199	4.61	93	11.67	223	2.51	1365	193	1.85	1715	203	2.08	1592	2.77	53.33	7.13
100154	200774	R	198	4.55	101	11.83	216	2.53	1291	188	1.82	1683	197	2.06	1565	2.69	52.82	6.87
100185	200767	C	223	5.31	134	10.66	335	4.87	931	214	2.52	1051	256	3.34	868	3.49	85.65	3.89
100254	200862	C	487	6.00	96	10.93	336	2.94	1175	332	2.01	1504	334	2.33	1388	4.83	59.75	5.85
100300	200898	C	433	8.48	90	9.19	335	3.42	948	269	2.67	1153	292	2.93	1081	3.98	75.14	4.52
100304	200898	C	285	7.69	90	9.44	258	2.18	1118	248	2.31	1168	255	2.26	1150	3.48	57.95	4.55
100327	200775	C	293	5.99	116	12.27	231	1.81	1148	217	1.19	1450	221	1.40	1344	3.01	35.90	5.97
100329	201529	C	464	8.90	45	6.68	470	3.65	1133	373	4.03	850	406	3.89	949	5.53	99.50	3.35
100091	200687	C	185	2.33	161	12.74	217	2.29	1114	205	1.25	1468	209	1.61	1474	2.85	41.28	6.85
100098	201070	C	328	5.99	101	10.93	229	1.03	2289	220	1.26	2086	223	1.17	2157	3.04	30.00	7.78
100261	200993	C	213	5.82	99	11.27	291	3.73	901	206	1.86	1321	235	2.51	1173	3.20	64.36	4.49
100262	200844	C	256	5.29	94	11.15	330	3.53	964	275	2.71	989	294	2.99	980	4.01	78.67	4.28
100294	200688	C	190	3.08	132	12.66	260	2.17	1169	229	1.88	1366	238	1.98	1297	3.26	50.77	6.02
100315	200843	C	248	5.25	102	11.30	244	2.27	934	213	1.77	1016	225	1.94	987	3.07	49.75	4.20
100317	200710	C	263	7.09	103	6.61	443	3.84	829	405	3.55	715	418	3.69	754	5.70	93.61	3.50
100317	200711	H	205	3.20	140	12.41				296	1.87	1274						
100323	200841	C	134	1.03	198	12.69	178	0.54	1460	161	0.44	1668	166	0.47	1595	2.26	12.05	6.72
100329	200690	C	306	6.36	95	9.99	241	2.19	807	209	2.18	713	220	2.18	675	3.00	55.90	3.10
100331	200644	C	276	7.90	91	8.35	284	2.98	974	242	2.97	1287	249	2.97	1177	3.40	76.16	5.21
100341	200897	C	500	8.02	129	9.69	360	3.06	1203	327	2.28	1673	338	2.55	1508	4.61	65.39	6.31
100360	201644	C	553	10.17	70	[illegible]	274	2.88	1164	306	2.37	1378	294	2.54	1303	4.00	84.96	4.70
100360	201647	H	567	10.20	60	[illegible]				312	2.42	1387						
100360	201648	R	594	10.43	54	[illegible]	286	2.88	1124	291	2.20	1506	289	2.43	1372	3.93	62.15	5.58
100157	200783	C	244	2.06	246	10.82	264	1.06	1772	331	1.44	1706	307	1.30	1729	4.42	35.21	8.25
100189	200898	C	76	1.40	50	11.17	157	0.72	1724	130	0.64	1350	139	0.66	1480	2.00	17.87	6.65
100227	200801	C	155	2.02	108	10.85	228	1.50	1286	190	1.30	1402	203	1.37	1361	2.92	37.10	6.39
100291	200966	C	64	0.11	389	10.10	174	0.76	1978	125	0.21	2316	142	0.40	2196	2.04	10.83	8.69
100340	200834	C	121	2.09	133	10.85	230	1.61	1248	201	1.35	1378	211	1.44	1332	3.04	38.99	5.91
100345	200786	C	92	1.82	124	10.68	122	0.95	801	104	1.02	861	110	0.99	841	1.58	26.80	3.90
100351	200972	C	89	2.95	100	11.08	202	1.23	1774	156	0.93	2016	172	1.03	1931	2.48	27.89	7.32
100367	200934	C	69	2.47	132	11.71	180	1.89	1469	122	0.66	1933	142	1.09	1770	2.04	29.51	6.82
100367	200948	R	57	2.45	44	11.63	180	2.18	1233	123	0.69	1787	142	1.21	1593	2.04	32.77	6.26
100397	200957	C	76	2.28	65	11.74	147	1.65	626	93	1.50	581	105	1.35	596	1.51	41.98	2.51
100404	200915	C	128	3.84	69	11.65	361	1.40	1716	197	1.46	1731	234	1.43	1725	3.66	38.72	7.96
100411	200958	C	243	4.23	57	10.72	272	1.56	1599	249	1.72	1292	257	1.66	1399	3.70	44.96	6.10
100423	200962	C	101	1.04	32	10.79	224	0.83	1799	194	0.61	1862	204	0.68	1839	2.94	18.41	8.04
100006	200883	C	762	2.57	81	10.99	947	1.94	1481	712	1.93	1349	794	1.93	1395	5.12	23.38	2.45
100010	200873	C	235	1.03	63	11.77	384	2.22	1214	303	1.37	1054	331	1.48	1110	2.13	20.11	2.32
100055	200993	C	396	2.89	113	10.95	483	1.78	2191	210	1.23	2127	305	1.42	2149	2.19	19.12	4.06
100109	200861	C	573	6.05	75	8.11	935	3.24	1493	587	3.16	1254	709	3.19	1337	4.58	38.65	2.58
100118	200730	C	564	2.80	82	10.25	563	1.91	1238	475	1.43	1228	505	1.56	1231	3.25	18.90	2.62
100126	200729	C	921	9.90	93	9.80	978	2.79	1396	878	2.79	1225	913	2.78	1286	5.89	33.69	2.73
100146	200851	C	79	0.74	93	9.67	860	2.76	1899	269	1.64	2169	475	2.03	2074	3.06	24.59	4.34
100158	200977	C	180	3.06	82	10.52	575	2.75	1496	551	2.16	1389	559	2.36	1426	3.60	28.59	2.71
100158	200978	H	190	3.15	78	10.98				486	2.04	1278						
100164	200686	C	185	2.46	98	8.04	372	2.31	1277	377	2.38	1610	375	2.42	1491	2.62	29.32	3.23
100169	200793	C	506	2.78	98	11.42	485	3.13	1276	386	1.89	1425	420	2.32	1372	2.71	28.11	2.90
100191	200879	C	1242	3.55	141	9.27	1107	2.58	1344	816	2.29	1097	917	2.39	1183	5.91	28.98	2.56
100192	200772	C	422	0.16	90	10.74	301	1.76	1230	240	1.32	1286	274	1.67	1266	1.97	19.79	2.94
100192	200782	R	227	0.08	86	9.96	294	1.51	1546	260	1.48	1391	271	1.49	1445	1.94	20.08	3.37
100509	201449	C	165	4.50	93	10.07	437	2.27	2152	368	2.02	2014	392	2.10	2062	2.53	25.46	3.40
100504	201525	C	136	2.99	101	12.81	364	2.96	1328	282	1.56	1360	310	2.05	1348	2.00	24.84	2.31
100513	201526	C	427	4.67	76	9.09	701	3.01	1344	621	2.65	1254	648	2.77	1285	4.18	33.56	2.19
100139	200923	C	260	7.96	74	9.47	469	2.78	1076	250	2.87	886	327	2.84	953	2.59	42.26	2.18
100194	200929	C	213	1.24	91	12.80	260	1.59	1138	276	1.26	1215	273	1.37	1188	2.14	20.41	2.77
100200	200860	C	594	0.12	94	11.34	707	0.67	1514	468	0.50	908	552	0.56	1120	4.87	9.27	3.04
100205	201025	C	382	2.38	86	9.73	344	1.14	1085	263	1.20	991	299	1.17	1023	2.37	17.62	2.38
100205	201024	R	467	2.75	95	9.66	401	1.17	1018	299	0.80	1107	334	0.92	1075	2.65	13.70	2.20
100229	200830	C	329	1.99	74	12.77	294	0.94	2058	223	0.44	2109	247	0.58	2091	1.96	8.66	4.89
100229	200874	C	256	0.90	89	13.67	174	2.91	739	146	1.62	1026	163	1.93	926	1.29	28.72	2.08
100259	200975	C	2145	3.56	63	6.03	1096	4.32	543	903	4.05	563	971	4.15	554	7.70	61.75	1.14
100269	200884	C	1472	0.24	132	11.26	972	0.59	1167	513	0.33	1158	534	0.42	1161	4.23	6.25	2.51

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE II — PROCESSING DATE- 03/27/73

CAR NO	RUN NO	S	CYCLE 2 IDLE HC	CYCLE 2 IDLE CO	CYCLE 2 IDLE NO	CYCLE 2 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100270	200882	C	143	3.38	106	12.44	129	0.88	2207	139	1.32	1912	114	1.17	2015	1.02	19.37	9.00
100271	200639	C	129	0.18	117	12.97	201	0.58	1703	153	0.19	1808	169	0.32	1771	1.49	5.30	9.07
100283	200877	C	229	4.17	115	11.76	183	0.82	1734	146	0.90	1457	159	0.97	1594	1.26	12.94	8.49
100299	200665	C	170	1.11	89	13.30	270	1.60	962	210	2.59	624	209	2.24	637	1.65	33.17	1.67
100301	200674	C	410	1.60	97	12.76	335	1.59	966	260	2.16	572	284	1.96	569	2.25	28.90	1.46
100374	200881	C	403	2.57	81	11.36	398	1.65	1084	296	1.61	959	332	1.62	1094	2.63	24.10	2.24

TABLE B-3

Kansas City

Phase III

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100190	301749	C	290	1.04	231	10.49	990	1.63	1708	360	1.02	2082	415	1.23	1951	4.85	26.72	7.20
100210	301257	C	197	4.03	100	11.55	997	2.77	1136	270	2.26	1533	314	2.43	1394	2.90	42.23	3.41
100238	301004	C	143	4.99	134	11.79	942	2.21	1175	204	1.77	1491	252	1.92	1380	2.92	41.80	4.40
100250	301714	C	535	6.76	99	10.65	993	1.84	1860	472	1.78	2029	500	1.80	1969	5.14	34.75	5.90
100250	301154	H	374	3.78	133	12.17				287	1.00	2440						
100401	300991	C	306	5.84	139	10.68	337	1.47	1997	279	1.28	2005	299	1.35	2002	3.08	26.07	5.42
100403	301743	C	316	2.34	135	12.38	329	1.09	2342	313	0.82	2628	318	0.91	2531	3.68	19.77	11.00
100406	300995	C	963	6.53	85	10.66	802	2.09	2171	515	1.92	2468	615	1.97	2364	9.69	34.24	5.78
100408	300996	H	413	6.79	74	10.56				904	1.72	1462						
100417	300987	C	293	4.67	119	12.06	359	1.79	1812	310	1.22	2219	327	1.41	2076	3.37	27.27	5.62
100435	301020	C	253	0.38	224	11.68	396	1.12	1502	317	0.41	1822	344	0.65	1710	3.98	14.12	5.80
100250	301729	R	313	3.70	147	11.66	475	1.46	2038	329	1.10	2448	377	1.22	2304	3.87	23.55	7.24
100052	301259	C	131	0.69	696	14.93	265	2.52	1717	120	0.42	2806	163	1.15	2424	1.67	22.20	6.38
100149	301262	C	300	5.85	172	11.28	335	3.43	1650	206	1.13	3187	251	1.93	2754	2.58	37.26	7.16
100224	301194	C	156	3.93	137	12.36	244	2.10	1416	178	1.29	1944	201	1.57	1759	2.09	30.72	4.80
100224	301195	H	157	3.10	159	12.89				190	1.47	1813						
100248	301366	C	239	3.89	206	11.69	377	3.31	1470	206	1.04	2376	265	1.83	2058	2.72	35.33	5.37
100249	301367	H	348	3.38	151	12.20				209	0.85	2322						
100263	301033	C	236	1.71	154	13.31	361	3.30	1017	243	0.73	1725	284	1.62	1477	3.29	35.26	4.71
100274	301789	C	145	1.30	133	13.26	430	1.74	1418	214	0.90	1756	289	1.19	1637	2.67	20.68	4.82
100284	301008	C	203	2.75	193	9.84	331	2.47	1627	179	0.70	2123	232	1.31	1949	2.38	25.33	5.32
100246	301005	C	521	15.66	50	7.11	889	3.47	1148	570	3.42	1248	681	3.43	1213	6.29	59.52	3.07
100286	301006	H	382	10.17	64	8.05				501	2.73	1529						
100326	301021	C	181	2.14	131	13.39	360	1.38	1679	283	1.02	1966	307	1.14	1865	2.86	19.78	4.65
100358	301115	C	249	4.71	149	11.89	327	2.93	1580	199	1.17	2323	243	1.78	2062	2.50	34.42	5.49
100274	301790	R	211	2.28	118	12.35	403	2.97	1300	179	1.02	1825	257	1.70	1641	2.38	29.54	4.57
100012	301207	C	339	5.27	139	11.35	397	3.53	891	254	1.28	1997	304	2.06	1609	3.51	44.76	4.76
100036	301012	C	243	4.13	107	12.24	338	2.63	910	262	2.85	883	288	2.77	892	3.65	65.99	3.01
100051	301429	C	329	3.83	105	12.25	374	2.32	884	299	1.40	1305	325	1.72	1157	3.38	33.65	3.11
100059	301066	C	257	4.41	104	11.40	399	2.99	1294	235	1.22	2421	292	1.83	2026	3.71	43.69	6.90
100120	301728	C	1113	6.86	130	8.37	370	2.45	538	687	1.89	2658	576	2.08	1916	7.30	49.54	7.51
100128	301230	C	163	2.19	171	13.15	373	2.28	1800	237	1.14	2545	284	1.53	2294	3.60	36.44	7.42
100162	301059	C	257	6.52	136	10.55	291	3.50	463	131	1.15	828	186	1.97	700	2.15	42.88	2.25
100170	301102	C	241	5.56	109	10.74	385	3.99	684	258	2.11	1731	302	2.76	1364	3.84	65.89	4.50
100520	301788	C	322	3.23	334	12.56	402	2.56	1800	274	1.44	2410	319	1.83	2196	4.04	43.60	8.81
100120	301732	R	1243	6.78	65	7.46	989	2.63	1563	813	1.92	2096	874	2.16	1902	11.08	51.45	8.88
100033	301007	C	129	2.91	93	11.88	345	1.30	1077	274	1.10	1327	298	1.17	1239	4.07	30.00	4.51
100095	301057	C	235	4.64	88	11.62	548	5.27	418	346	3.73	779	416	4.26	652	5.28	101.65	2.14
100090	301050	C	356	6.32	62	9.62	436	2.54	1937	278	2.73	2028	333	2.66	1996	4.54	68.21	7.11
100099	301051	C	352	9.26	64	8.24	614	4.74	611	407	4.43	796	479	4.54	731	6.53	116.13	2.72
100099	301002	H	272	8.50	56	8.91				296	3.82	1004				4.04	97.97	3.76
100117	301107	C	305	10.12	54	8.33	350	2.44	1399	215	1.70	2001	262	1.95	1790	3.33	46.55	5.88
100133	301235	C	122	0.98	98	13.70	218	1.52	2263	185	0.89	2406	196	1.11	2355	2.67	28.39	8.42
100167	301215	C	195	4.57	112	11.31	339	2.18	1557	241	1.50	2022	275	1.73	1859	3.48	41.21	6.07
100174	301219	C	118	3.21	109	12.12	260	2.40	1410	170	1.40	1734	201	1.75	1620	2.89	47.25	5.92
100222	301743	C	220	2.44	117	10.65	413	1.66	1968	256	1.13	2288	310	1.31	2176	4.22	33.50	9.22
100222	301770	R	198	1.75	117	11.03	294	1.04	2152	237	0.95	2407	256	0.98	2317	3.48	25.06	10.18
100101	301785	C	358	4.37	97	11.66	499	2.15	1834	329	1.32	2346	385	1.61	2166	5.80	45.23	10.72
100197	301706	C	1366	7.11	85	8.52	587	2.81	834	561	2.96	770	570	2.90	792	7.76	74.17	3.51
100226	301014	C	159	3.55	90	12.16	264	3.24	1125	236	2.19	1627	226	2.55	1451	3.08	65.39	5.40
100266	301046	C	679	7.01	77	8.17	483	5.02	414	424	3.23	880	464	3.85	716	5.64	91.91	2.30
100277	301015	C	968	9.05	72	8.98	2884	2.36	1678	1381	2.28	1881	1900	2.30	1809	25.89	58.98	8.63
100277	301016	H	2278	6.49	74	8.94				2188	1.44	2212						
100306	301020	C	220	3.53	77	11.16	293	3.51	597	218	2.02	1005	244	2.54	862	3.10	60.63	2.94
100321	301272	C	101	0.40	135	13.39	232	1.88	1538	175	0.94	2016	194	1.26	1848	2.79	34.01	6.76
100342	301043	C	166	4.60	103	10.49	284	2.21	1142	219	2.11	1340	241	2.14	1277	3.29	56.88	4.62
100441	301223	C	260	3.45	121	12.43	345	4.74	428	250	3.86	550	283	4.16	507	3.59	99.09	1.63
100101	301786	R	330	3.77	116	12.03	489	1.71	1478	329	1.28	2187	384	1.43	2078	5.74	40.17	9.64
100142	301113	C	131	1.22	224	14.11	203	0.65	2281	171	0.48	2565	182	0.53	2465	1.87	10.24	6.56
100187	300994	C	235	2.79	153	13.06	353	1.52	1673	272	0.79	2056	300	1.04	1921	3.08	20.11	5.26
100213	301132	C	237	6.23	121	10.92	293	2.23	2341	218	1.10	3093	244	1.49	2829	2.82	32.43	8.56
100213	301133	H	235	6.37	113	10.72				229	1.00	3087						
100255	301509	C	177	4.55	129	12.11	211	1.42	2284	180	1.10	2569	190	1.21	2469	1.95	23.36	6.69
100255	301501	H	167	4.26	125	12.22				176	0.96	2598						
100292	301044	C	185	4.64	121	11.77	302	2.38	1678	205	0.99	2297	234	1.47	2080	2.45	29.42	5.67
100328	301055	C	255	4.32	126	12.34	344	2.01	2097	268	1.03	2686	294	1.37	2479	3.40	29.82	7.55
100364	301746	C	127	0.13	235	13.25	340	1.46	1846	248	0.75	2141	283	0.99	2037	2.87	19.11	7.19
100381	301391	C	330	5.60	125	11.43	287	1.57	2278	236	1.05	2726	253	1.23	2570	2.60	23.74	6.98
100381	301394	H	354	5.92	130	11.11				250	1.09	2664						
100433	300997	C	266	6.64	91	10.60	465	5.61	394	347	4.89	431	388	5.14	404	4.49	111.91	1.24
100433	300998	H	344	4.92	102	11.75				444	7.06	163						
100381	301393	R	341	6.39	108	10.87	291	1.69	2377	240	1.16	2588	257	1.34	2514	2.64	25.87	7.05
100438	301709	C	102	0.11	271	13.74	270	1.91	1576	208	1.58	1714	229	1.69	1665	2.35	32.63	5.72
100342	301739	C	344	1.24	324	13.11	349	0.87	1892	295	0.37	2435	312	0.44	2213	3.21	10.43	8.39
100387	301032	C	235	3.77	144	12.44	314	1.92	1196	242	1.57	1332	267	1.69	1284	2.74	32.68	3.42
100381	301450	C	140	1.47	148	13.88	268	0.79	1201	221	0.55	1333	237	0.63	1286	2.43	12.15	3.34
100388	301491	H	136	0.59	232	14.17				220	0.49	1224						
100394	301042	C	178	1.71	242	12.39	213	0.83	2304	171	0.50	3028	185	0.61	2813	1.90	11.79	7.56
100405	301677	C	121	1.63	146	13.42	436	3.02	435	248	2.11	845	324	2.42	788	3.01	42.08	2.16
100414	301027	C	261	4.39	99	9.92	332	1.82	2190	272	1.25	2884	293	1.44	2597	3.01	27.84	6.66

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	-----CYCLE 7 IDLE----- HC	CO	NO	CO2	---CYCLES 1-6--- HC	CO	NO	---CYCLES 6-7--- HC	CO	NO	---COMPOSITE---- HC	CO	NO	--MASS EQUIVALENT-- HC	CO	NOXC
100429	301222	C	291	7.47	114	10.21	274	1.61	1779	225	1.68	1702	244	1.65	1727	2.50	31.66	4.51
100432	301446	C	166	1.96	191	13.20	244	0.85	2928	206	0.60	3296	233	0.68	3167	2.39	13.12	8.34
100444	301158	C	59	1.18	174	14.13	329	0.61	864	231	2.73	1057	265	3.33	989	2.65	52.66	2.36
100446	301445	C	72	0.12	317	13.89	252	0.80	2318	172	0.18	2729	200	0.39	2585	2.05	7.52	7.39
100447	301452	C	242	1.34	222	13.30	327	1.66	2293	280	0.54	3008	296	0.93	2757	3.04	17.95	7.33
100447	301453	H	431	1.77	442	13.19				321	0.48	3152						
100508	301779	C	535	5.46	119	11.01	629	4.49	678	436	4.23	891	503	4.32	816	3.99	64.28	2.05
100508	301793	R	607	5.88	253	10.60	332	3.87	766	422	4.20	870	411	4.08	833	3.26	60.71	2.08
100517	301073	C	236	0.08	79	12.53	349	0.82	2015	299	0.14	583	315	0.37	1084	4.01	8.83	3.64
100037	301019	C	317	7.63	81	10.05	354	1.45	1807	275	1.23	2195	302	1.30	2059	3.50	28.30	6.42
100057	301292	C	224	4.09	117	11.09	287	2.16	711	188	1.17	971	222	1.51	879	2.56	32.81	2.60
100058	301293	H	325	4.19	90	10.83				261	1.08	954						
100065	301060	C	276	5.93	96	10.94	379	1.79	1923	292	1.18	2317	322	1.39	2179	3.73	30.26	6.69
100071	301029	C	135	0.59	217	14.25	317	1.03	1386	223	0.98	1482	255	0.99	1448	3.24	23.58	4.77
100099	301494	C	261	5.29	103	10.17	365	2.16	2208	286	1.38	2517	313	1.65	2408	3.62	35.85	7.06
100088	301495	H	242	4.67	99	10.37				280	1.03	2689						
100147	301023	C	589	4.42	82	11.88	721	1.59	1957	610	1.25	2389	648	1.36	2237	8.24	32.44	7.34
100147	301024	H	588	3.14	112	12.60				553	0.90	2775						
100155	301090	C	387	7.37	96	10.10	379	1.25	1539	278	1.35	1545	313	1.31	1802	3.95	31.27	5.98
100155	301093	H	391	7.21	83	10.25				277	1.31	1884						
100204	301126	C	96	0.46	209	11.75	289	0.96	1692	203	0.34	2235	231	0.55	2044	2.93	13.13	6.78
100223	301303	C	593	5.90	115	11.06	535	2.29	1423	480	1.79	1706	499	1.96	1606	6.33	46.68	5.27
100519	301744	C	2792	4.67	99	7.21	2840	2.91	990	2883	1.25	1778	2867	1.83	1502	36.36	43.59	6.24
100155	301092	R	309	7.53	86	10.15	385	2.22	1215	272	1.31	1859	311	1.62	1633	3.95	38.67	5.52
100519	301755	R	2755	4.59	93	7.67	2826	2.13	1202	2839	1.20	1762	2834	1.54	1566	35.96	36.68	6.18
100152	301034	C	388	7.08	105	10.36	423	1.61	1640	314	1.59	1964	351	1.99	1850	4.07	34.61	5.66
100156	301042	C	318	3.96	164	12.48	418	2.04	1630	264	0.80	2271	317	1.23	2046	4.33	31.54	7.68
100291	301048	C	244	2.54	147	13.30	313	1.42	1555	224	0.62	2123	255	1.04	1924	2.95	22.64	5.63
100339	301496	C	432	6.06	107	11.11	415	2.18	1056	299	1.27	1826	339	1.58	1556	3.92	34.33	4.99
100339	301487	H	380	4.64	129	11.89				275	0.96	1754						
100351	301764	C	447	5.22	89	9.47	539	1.47	1978	389	1.08	2085	453	1.21	2047	5.81	28.82	8.33
100393	301074	C	342	4.78	108	11.75	319	0.94	2068	227	0.83	2273	259	0.86	2201	3.53	22.03	7.78
100427	301176	C	347	8.21	81	9.76	322	1.68	1866	268	1.51	2333	286	1.56	2189	3.31	33.90	6.64
100439	301045	C	287	6.27	112	10.86	393	2.22	1934	270	1.32	2675	313	1.63	2436	3.62	35.48	7.17
100442	301062	C	155	1.60	100	14.03	348	1.76	1292	303	0.61	1629	332	1.01	1511	3.46	19.76	4.21
100453	301498	C	245	1.66	239	13.83	303	1.09	1603	235	0.50	2058	259	0.70	1898	3.27	15.67	6.21
100361	301767	R	444	4.69	100	9.87	524	1.23	1963	383	0.99	2398	432	1.07	2245	5.48	25.48	8.70
100453	301499	R	230	1.36	248	14.13	273	0.93	1561	225	0.39	2158	241	0.57	1949	3.05	13.57	6.21
100043	301041	C	241	4.52	110	12.15	316	1.43	1810	235	1.27	1999	263	1.32	1932	3.34	31.51	6.51
100049	301703	C	357	6.36	148	10.64	422	2.34	1772	303	1.60	2190	344	1.85	2043	4.36	44.06	8.61
100069	301302	C	238	5.69	120	11.18	304	2.32	1580	213	1.20	2170	246	1.59	1983	3.35	40.66	6.91
100081	301031	C	267	7.52	67	10.22	351	2.72	1261	250	1.72	2038	285	2.07	1766	3.89	53.08	6.25
100102	301214	C	203	3.58	134	12.77	311	2.50	1526	196	1.14	2202	236	1.61	1965	2.99	38.34	6.42
100119	301515	C	312	5.72	120	11.25	440	2.76	1035	316	2.73	1000	359	2.74	1012	4.55	65.27	3.30
100127	301030	C	231	3.58	97	12.72	261	1.84	1708	198	0.99	2562	220	1.28	2263	3.00	32.82	8.01
100305	301173	C	73	0.10	197	13.18	201	0.89	1766	149	0.18	2262	167	0.42	2088	2.11	10.00	7.01
100305	301174	H	100	0.10	367	12.77				165	0.16	2515						
100309	301029	C	167	1.87	163	13.70	319	3.09	922	218	2.55	1024	253	2.73	988	3.45	70.01	3.53
100119	301516	R	281	5.60	99	11.40	406	2.01	1682	320	2.54	1333	350	2.35	1455	4.44	55.97	4.74
100020	301801	C	517	6.20	113	10.27	456	2.19	1019	387	2.92	852	411	2.66	910	5.91	71.82	4.39
100352	301749	C	341	5.58	134	9.60	314	1.85	965	255	2.50	940	275	2.27	948	3.95	61.29	5.27
100384	301734	C	390	7.41	76	9.36	393	2.12	826	327	2.17	998	350	2.15	937	5.03	58.05	4.81
100384	301737	H	368	7.43	76	8.96				280	2.28	957						
100415	301120	C	229	7.17	97	10.22	258	2.42	879	176	2.35	892	204	2.37	887	2.94	64.19	3.35
100415	301121	H	208	6.34	105	10.65				156	1.88	1074						
100416	301769	C	241	2.18	150	10.30	298	1.05	1357	293	1.37	1480	294	1.25	1436	4.22	33.74	6.49
100425	301747	C	347	7.53	71	9.74	284	1.99	1191	237	2.41	557	246	2.26	778	3.53	61.02	3.83
100426	301760	C	347	3.96	108	10.04	457	4.20	514	375	3.48	658	403	3.73	607	5.79	100.72	2.67
100428	301759	C	154	0.24	233	11.82	469	3.20	533	241	0.71	1366	320	1.58	1074	4.39	40.41	4.54
100450	301142	C	247	5.55	107	11.28	350	2.99	965	190	1.19	1582	246	1.81	1366	3.35	46.29	4.87
100450	301143	H	206	4.24	120	12.08				167	0.91	1682						
100426	301768	R	433	4.17	133	8.37	671	5.26	229	461	4.35	415	534	4.66	349	7.68	125.83	1.55
100257	301927	C	264	6.42	87	10.45	492	4.01	636	317	2.67	1095	357	3.13	934	4.14	68.14	2.80
100278	301911	C	256	5.58	51	6.40	369	3.33	979	285	2.93	1101	314	3.06	1058	3.64	66.62	3.25
100337	301620	C	337	4.98	131	11.66	446	3.47	973	211	1.31	1532	293	2.36	1336	3.39	44.76	3.84
100337	301621	H	350	4.99	101	11.63				210	1.07	1609						
100370	301530	C	257	4.20	102	12.62	491	2.89	1390	177	1.05	1488	296	1.69	1493	3.31	36.72	4.32
100370	301544	H	231	3.51	102	12.74				163	0.69	1604						
100422	301013	C	311	4.23	98	11.76	419	3.86	743	258	1.36	1457	314	2.23	1207	3.64	48.55	3.81
100434	301009	C	282	3.40	113	10.73	455	4.09	649	294	3.58	660	350	3.75	656	4.05	81.64	2.01
100434	301010	H	246	0.19	180	12.89				331	2.67	887						
100434	301800	C	397	2.34	110	12.18	918	5.22	600	371	1.11	967	562	1.84	838	5.78	35.52	2.78
100443	301625	C	363	6.83	82	10.41	245	1.86	1111	222	1.09	1364	237	1.35	1288	2.74	29.33	3.90
100452	301299	C	739	15.85	78	9.10	303	2.99	1006	273	1.53	1306	283	2.00	1201	3.27	43.46	3.56
100370	301543	R	227	3.49	163	12.45	275	3.09	1019	164	0.86	1555	202	1.64	1367	2.33	35.64	4.04
100313	301414	C	167	1.18	123	14.35	314	2.42	1234	144	0.43	1998	204	1.12	1730	2.36	24.33	5.11
100344	301077	C	304	9.36	57	8.81	281	3.11	1083	196	1.81	1638	225	2.26	1443	2.86	53.95	4.76
100362	301035	C	276	8.99	94	10.25	275	3.48	1099	203	1.07	1543	223	1.56	1347	2.89	37.24	4.69
100372	301240	C	150	3.08	118	12.66	110	2.22	839	62	0.47	1130	74	1.16	1028	0.90	25.20	1.09
100377	301181	C	190	2.86	140	13.26	249	1.93	1599	202	0.81	2261	221	0.93	2029	2.55	20.21	4.93

198<

COLD AND HOT START TEST DATA KANSAS CITY, PHASE III PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CO	NO	CO2	CYCLES 1-4 HC	CO	NO	CYCLES 6-7 HC	CO	NO	COMPOSITE HC	CO	NO	MASS EQUIVALENT HC	CO	NOXC
100377	301182	H	193	1.61	121	12.90				216	1.12	2006						
100385	301624	C	185	3.65	139	13.01	177	2.13	1337	95	0.64	1820	123	1.16	1650	1.56	27.62	5.70
100385	301629	H	183	3.08	141	13.08				96	0.54	1511						
100390	301606	C	209	4.32	110	12.20	198	1.82	766	138	1.15	935	155	1.38	875	1.79	29.99	2.63
100410	301612	C	1138	0.13	58	8.34	499	1.13	932	683	0.16	878	618	0.49	896	7.15	10.64	2.66
100410	301613	H	940	0.12	59	8.47				557	0.14	696						
100413	301562	C	79	0.14	209	11.71	299	1.95	1303	156	0.62	1809	206	1.08	1631	2.61	25.72	5.57
100419	301079	C	279	5.76	83	11.16	147	1.80	994	99	0.74	1130	115	1.11	1082	1.33	24.16	3.26
100419	301080	H	248	4.28	104	12.13				107	0.72	969						
100420	301112	C	179	4.74	94	11.90	249	3.10	950	145	1.13	1464	181	1.81	1284	2.30	43.20	4.22
100455	301211	C	143	1.03	192	13.38	562	3.26	1056	192	1.23	1554	321	1.94	1379	3.71	42.06	4.14
100413	301563	R	76	0.13	209	11.24	383	2.18	1294	161	0.67	1790	236	1.19	1616	3.01	28.34	5.57
100009	301603	C	946	9.48	67	8.06	755	5.85	945	721	2.73	1358	732	3.12	1213	9.28	74.32	3.93
100009	301604	H	2972	9.08	57	6.71				2425	2.53	1315						
100013	301593	C	843	10.89	55	7.30	511	5.05	1054	577	4.78	1237	553	4.90	1172	6.40	106.48	3.47
100028	301212	C	394	3.27	146	12.47	371	1.92	1780	283	0.64	2287	313	1.21	2109	4.26	30.95	7.47
100129	301653	C	380	8.82	63	9.30	719	2.70	1135	248	1.73	1569	272	2.06	1417	3.14	44.76	4.99
100145	301114	C	458	4.97	98	11.09	472	2.10	1439	370	1.34	1802	405	1.60	1674	5.15	38.19	5.51
100237	301180	C	402	4.82	129	11.66	306	1.89	1391	232	0.96	1712	257	1.28	1599	3.26	30.49	5.39
100243	301557	C	428	8.86	82	9.07	389	3.31	1167	260	2.30	1323	305	2.65	1268	3.53	57.59	3.81
100311	301124	C	297	4.60	101	11.73	367	3.28	1328	288	1.48	1678	319	2.11	1555	3.65	45.93	4.79
100311	301125	H	348	2.91	123	12.81				291	1.31	1657						
100357	301177	C	498	5.28	138	11.35	381	1.63	1769	341	2.01	1585	354	1.88	1649	4.49	44.79	5.54
100357	301178	H	455	4.04	184	12.05				327	1.85	1605						
100437	301146	C	661	6.62	89	10.19	599	2.48	1705	476	1.12	2391	505	1.59	2150	6.40	37.87	7.15
100243	301554	R	392	8.77	81	9.18	366	2.93	1325	254	.34	1227	293	2.54	1261	3.39	55.19	3.79
100437	301147	R	458	6.81	87	9.89	551	2.35	1890	465	1.20	2605	495	1.60	2354	6.28	38.11	7.95
100061	301256	C	520	8.93	87	9.02	455	2.37	1336	382	1.52	1918	407	1.81	1714	5.18	43.11	5.60
100054	301458	C	456	6.45	85	10.13	577	1.95	1094	416	1.80	1217	472	1.85	1173	6.43	47.32	4.16
100063	301179	C	186	3.10	128	12.89	314	3.02	944	196	0.87	1405	237	1.62	1243	3.00	38.58	4.17
100068	301470	C	209	5.01	140	11.61	269	2.25	919	222	1.98	862	238	2.07	933	3.24	52.94	3.57
100087	301063	C	403	1.18	197	13.16	378	1.91	1232	363	1.23	1496	368	1.46	1402	4.67	34.85	4.77
100149	301463	C	323	4.99	115	11.13	413	2.69	1523	304	1.39	2080	342	1.84	1885	4.65	47.06	6.40
100172	301729	C	599	4.66	86	7.98	882	7.31	93	570	7.20	146	679	7.23	127	9.25	184.94	0.54
100198	301106	C	237	3.80	93	11.50	398	3.55	892	377	3.00	868	384	3.19	876	5.24	81.81	3.10
100211	301642	C	315	5.61	98	11.29	452	7.27	92	299	6.61	105	352	6.84	100	4.46	162.94	0.34
100211	301643	H	268	4.71	104	11.69				285	6.24	107						
100172	301734	R	951	13.29	61	7.52	1245	7.55	84	764	7.80	92	932	7.71	89	12.69	197.22	0.42
100008	301239	C	663	10.55	54	7.81	303	2.75	1401	305	1.44	1768	304	1.89	1639	3.96	45.02	5.41
100053	301725	C	545	4.09	48	9.18	472	2.11	1542	412	1.69	1869	433	1.83	1754	5.89	46.81	7.29
100062	301094	C	140	1.62	129	12.28	341	4.59	823	268	1.87	1521	293	2.82	1276	4.00	72.32	4.70
100131	301039	C	207	3.78	98	12.63	259	2.59	1165	179	0.76	1704	206	1.39	1515	2.62	33.19	5.03
100215	301226	C	279	7.15	94	10.26	362	3.37	1369	213	1.57	1961	265	2.20	1753	3.36	52.52	5.75
100216	301234	C	267	6.12	66	8.67	329	3.46	1409	197	1.13	2427	243	1.94	2070	3.31	49.62	7.33
100235	301111	C	277	6.50	92	10.17	344	3.29	1621	232	1.10	2529	271	1.86	2211	3.44	44.40	7.27
100280	301099	C	223	4.46	105	11.70	342	3.03	1164	214	1.32	1548	259	1.91	1413	3.28	45.60	4.81
100319	301194	C	334	6.92	86	10.42	390	2.97	1783	287	1.77	2026	309	2.18	1940	3.92	51.92	6.61
100053	301730	R	755	9.37	54	8.61	813	3.59	906	591	2.13	1242	662	2.64	1124	9.02	67.53	5.53
100296	301777	C	226	2.75	132	12.11	277	1.53	650	167	1.48	667	205	1.48	668	2.60	35.25	2.56
100336	301472	C	301	5.49	107	11.50	409	3.03	1238	283	1.73	1601	327	2.18	1473	4.15	51.93	4.85
100346	301276	C	270	5.98	114	10.73	299	3.15	1004	244	2.14	1195	263	2.49	1129	3.33	59.31	3.65
100350	301218	C	504	6.12	102	10.96	393	3.74	1006	263	2.25	1375	308	2.77	1245	4.19	70.85	4.28
100389	301067	C	178	1.47	122	13.43	266	1.86	782	203	0.84	933	225	1.19	880	3.07	30.51	3.21
100391	301272	C	342	3.43	55	9.73	312	2.46	612	316	1.92	681	314	2.10	656	3.98	50.02	2.13
100400	301619	C	488	10.78	75	7.39	493	5.84	262	344	5.56	324	396	5.65	302	5.39	144.53	1.01
100296	301780	R	194	1.56	169	13.13	173	1.14	662	150	1.05	671	158	1.08	667	2.00	25.72	2.61
100389	301068	R	174	1.45	143	13.48	222	1.06	1005	203	1.30	979	209	1.21	988	2.85	31.03	3.83
100125	301644	C	179	1.35	229	13.37	315	2.25	990	229	0.83	1377	259	1.32	1241	3.28	31.44	4.17
100125	301645	H	163	1.29	229	13.38				211	0.77	1334						
100218	301083	C	237	6.03	102	10.97	215	1.90	1139	178	1.54	1595	190	1.66	1435	2.20	36.14	4.27
100218	301084	H	247	6.38	101	10.61				188	1.37	1848						
100240	301636	C	275	6.57	96	10.66	271	1.69	1576	213	1.68	1709	233	1.68	1662	2.95	40.01	5.55
100240	301637	H	287	7.05	98	10.40				222	1.39	2028						
100267	301085	C	265	5.60	109	11.02	310	2.91	1146	227	1.45	1645	257	2.09	1473	3.27	49.86	4.83
100267	301086	H	265	5.33	113	11.24				228	1.49	1830						
100272	301617	C	193	2.44	185	13.51	205	1.95	1472	160	0.80	2155	175	1.20	1915	2.22	28.58	6.05
100272	301619	H	192	2.44	175	13.39				160	0.72	2024						
100273	301250	C	231	4.59	126	11.64	187	1.97	841	138	1.08	981	155	1.39	931	1.96	33.11	3.07
100279	301751	C	177	0.71	221	13.64	222	0.35	2091	204	0.34	2159	210	0.34	2135	2.66	8.09	10.42
100457	301228	C	255	4.99	110	11.75	263	2.34	1265	195	1.26	1642	218	1.63	1510	2.52	35.41	4.50
100502	301791	C	276	4.45	133	11.17	397	2.21	1202	221	1.80	1511	282	1.94	1402	3.26	42.16	4.91
100279	301754	R	499	0.21	246	13.01	173	0.36	918	194	0.22	881	186	0.26	854	2.35	6.16	3.33
100023	301626	C	152	2.45	131	10.87	256	2.59	841	200	1.09	1427	219	1.61	1221	2.77	34.34	4.22
100065	301605	C	145	2.10	208	13.52	261	1.71	1336	179	0.74	1908	194	1.07	1642	2.64	27.36	5.73
100193	301678	C	236	3.59	119	11.89	241	1.66	1124	223	1.15	1492	236	1.32	1363	3.21	33.76	4.84
100194	301188	C	310	4.95	128	11.67	290	2.66	1202	224	1.36	1870	243	1.88	1636	3.31	49.08	5.85
100214	301038	C	255	4.64	123	11.69	296	2.61	1053	210	1.11	1691	240	1.63	1467	3.27	41.79	5.40
100219	301108	C	293	5.63	133	11.12	324	2.15	1195	213	1.24	1639	251	1.55	1483	3.42	39.75	5.41
100242	301749	C	303	4.35	131	11.27	285	1.79	1166	268	1.38	1536	273	1.52	1405	3.72	38.88	7.42
100242	301750	H	271	3.96	115	11.37				249	1.57	1451						

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE III — PROCESSING DATE- 3/27/72

CAR NO	RUN NO	S	-----CYCLE 7 IDLE-----				---CYCLES 1-4---			---CYCLES 6-7---			---COMPOSITE----			--MASS EQUIVALENT--		
			HC	CO	NO	CO2	HC	CO	NO	HC	CO	NO	HC	CO	NO	HC	CO	NOXC
100302	301821	C	95	0.10	499	12.69	105	0.25	1032	103	0.26	1031	103	0.25	1031	1.30	5.95	4.07
100515	301727	C	383	5.60	23	10.71	314	1.76	1049	242	1.49	401	268	1.57	876	3.65	40.16	3.61
100515	301731	H	114	5.63	123	10.99	413	1.80	1322	91	1.37	1826	203	1.52	1649	2.77	38.88	7.94
100231	301161	C	462	4.07	73	8.95	419	3.59	1220	381	2.40	1675	393	2.91	1515	5.35	71.87	5.41
100136	301673	C	183	1.91	133	12.79	227	2.44	746	144	0.63	1069	185	1.26	955	2.53	32.22	3.40
100209	301639	C	131	2.49	106	11.92	207	2.11	578	158	0.93	1026	175	1.34	869	2.22	31.91	2.90
100290	301712	C	265	2.10	130	12.16	331	2.23	1408	266	1.05	2306	284	1.46	2023	3.92	37.34	9.05
100335	301549	C	344	7.21	53	10.27	473	3.44	1265	351	2.76	1884	376	2.67	1660	5.12	68.29	5.96
100340	301097	C	324	4.15	87	11.30	429	3.02	1430	339	0.83	2199	370	1.59	1929	5.05	40.77	7.00
100392	301109	C	365	8.66	69	8.77	532	4.79	706	468	3.29	926	490	3.81	849	6.69	97.70	2.94
100392	301110	H	365	8.46	67	8.63				444	3.27	966						
100527	301806	C	297	2.89	128	11.40	336	1.52	1320	299	0.73	1634	311	1.00	1524	4.47	27.00	7.30
100527	301807	H	276	3.07	129	11.75	304	2.28	1118	257	0.80	1788	273	1.31	1553	3.93	35.38	6.97
100021	301742	C	402	6.68	97	8.49	382	2.06	944	296	1.79	1038	326	1.88	1005	4.13	44.78	4.66
100094	301122	C	274	5.13	74	9.40	342	1.70	1030	242	1.62	1132	277	1.64	1096	3.78	42.06	3.92
100113	301504	C	725	3.28	110	11.87	381	3.47	1024	328	1.45	1497	346	2.15	1331	4.39	51.21	4.45
100113	301505	H	977	2.36	131	12.22				408	3.67	1665						
100123	301745	C	407	5.25	90	10.90	542	1.77	1455	379	1.46	1418	435	1.56	1424	5.53	37.18	6.03
100160	301713	C	231	3.05	118	12.12	263	1.69	868	193	1.25	838	217	1.40	750	2.75	33.34	3.19
100175	301497	C	161	3.07	112	12.48	290	2.62	1062	172	1.31	1314	213	1.76	1225	2.90	45.01	4.40
100175	301498	H	198	2.33	125	12.31				176	1.15	1386						
100184	301095	C	191	6.24	104	10.87	306	3.41	924	207	1.88	1369	241	2.41	1213	3.06	57.53	4.10
100184	301096	H	183	5.36	104	11.32				205	1.71	1367						
100236	301224	C	370	9.34	77	9.03	369	4.93	781	257	2.90	1277	296	3.57	1103	3.75	85.04	3.55
100303	301506	C	136	3.04	133	13.16	207	2.47	838	139	1.33	1165	162	1.72	1050	2.05	40.96	3.49
100303	301509	H	126	2.08	139	13.27				129	1.31	1123						
100369	301536	C	174	2.93	113	13.13	293	2.44	1065	187	1.11	1413	224	1.57	1291	3.05	40.15	4.54
100369	301539	H	132	1.62	129	13.90				173	0.84	1462						
100303	301508	R	133	3.16	134	13.15	197	2.46	865	134	1.59	1010	156	1.89	959	1.97	45.01	3.12
100369	301538	R	150	2.39	130	13.63	298	2.66	875	175	1.19	1332	219	1.70	1172	2.96	43.48	4.07
100176	301711	C	264	4.76	91	11.32	231	1.55	1271	188	1.13	1446	203	1.27	1384	2.76	32.48	6.31
100287	301740	C	258	3.27	99	11.61	296	1.67	1321	239	1.46	1514	258	1.53	1446	3.51	39.13	7.19
100314	301705	C	799	7.31	127	8.33	376	2.55	805	335	1.89	1076	349	2.12	981	4.75	54.22	4.36
100343	301101	C	258	6.42	80	10.11	216	1.75	1804	176	1.23	2154	190	1.41	2031	2.59	36.15	7.21
100363	301123	C	239	5.71	83	10.55	256	3.08	1185	184	1.69	1743	209	2.17	1547	2.85	55.64	5.53
100366	301795	C	230	2.04	[illegible]	13.25	271	1.41	1107	231	1.10	1282	244	1.34	1220	3.32	34.28	5.59
100373	301710	C	326	6.60	72	9.73	336	6.19	163	304	6.51	138	315	6.39	146	4.29	163.45	0.67
100379	301702	C	270	2.18	116	13.22	216	1.11	1204	204	0.82	1416	209	0.92	1341	2.83	23.53	5.97
100389	301741	C	175	0.64	112	12.70	175	0.32	681	184	0.26	701	180	0.28	693	2.45	7.18	3.47
100373	301802	R	429	6.11	111	9.72	551	6.63	146	409	7.28	137	452	7.05	140	6.15	180.34	0.65
100399	301782	R	157	0.50	120	12.70	190	0.24	695	148	0.23	817	161	0.23	774	2.19	5.87	3.94
100018	301127	C	435	5.81	75	8.44	367	5.01	442	424	4.02	475	404	4.36	463	5.51	111.81	1.64
100042	301815	C	335	6.61	86	9.80	357	2.01	1329	292	2.24	1348	314	2.15	1341	4.33	54.99	5.73
100103	301237	C	159	3.92	112	11.04	263	4.04	886	190	1.68	1502	215	2.50	1286	2.92	63.84	4.59
100185	301726	C	183	3.18	143	11.53	244	1.80	1633	174	0.99	2082	199	1.27	1924	2.69	32.48	8.20
100300	301766	C	525	6.00	52	8.83	418	1.99	1563	378	1.93	1695	392	1.95	1648	5.34	49.87	6.86
100304	301812	C	316	5.62	96	10.20	375	2.71	1172	297	1.96	1478	324	2.22	1370	4.41	56.78	6.04
100327	301493	C	270	3.91	122	12.42	209	1.79	1508	189	1.26	1861	195	1.44	1737	2.65	36.82	8.00
100185	301733	R	208	2.88	91	11.67	342	2.95	946	219	1.36	1443	262	1.91	1269	3.56	48.85	6.67
100091	301105	C	126	1.08	175	11.08	217	2.36	1446	175	0.80	2016	189	1.34	1816	2.58	34.36	8.44
100098	301581	C	398	6.84	109	10.40	349	3.28	1443	260	2.09	1759	291	2.50	1648	3.96	63.94	5.99
100261	301611	C	155	4.90	122	11.74	251	3.03	1257	210	1.67	1767	234	2.01	1575	3.18	51.41	5.53
100262	301276	C	688	6.15	177	10.52	359	3.34	1633	401	1.79	2895	386	2.33	2453	5.25	59.59	8.67
100315	301117	C	149	5.39	114	11.41	277	2.69	1353	130	1.49	1846	181	1.90	1543	2.47	48.72	5.52
100317	301118	C	138	1.55	201	13.61	302	2.71	1453	203	0.50	2300	237	1.27	2003	3.23	32.56	7.17
100317	301119	H	123	1.17	209	13.95				216	0.50	2217						
100329	301139	C	280	4.95	111	11.92	277	2.24	1278	195	1.53	1493	223	1.77	1417	3.04	45.39	5.03
100331	301071	C	244	7.25	59	6.71	274	3.07	1048	238	2.29	1304	250	2.56	1214	3.41	65.65	4.38
100360	301704	C	585	9.91	95	8.35	319	2.37	1687	364	2.69	1120	348	2.57	1248	4.74	65.74	5.69
100098	301582	R	382	6.90	121	10.73	321	3.10	1592	246	1.72	2055	272	2.20	1892	3.70	56.27	6.96
100157	301136	C	221	2.69	79	10.76	270	1.60	1537	253	1.40	1631	258	1.47	1598	3.71	39.69	5.93
100189	301738	C	115	2.00	104	10.40	188	1.04	1707	162	0.79	1952	171	0.87	1866	2.46	23.49	9.78
100227	301774	C	172	2.23	447	10.60	258	2.44	1273	181	1.28	1824	207	1.68	1631	2.97	45.36	7.18
100340	301665	C	104	2.25	129	10.75	272	2.77	1153	195	1.42	1743	228	1.89	1536	3.27	51.03	5.64
100345	301245	C	110	2.31	99	11.35	162	2.38	732	102	1.03	971	123	1.50	887	1.76	40.50	3.30
100397	301706	C	137	3.25	123	10.45	143	1.46	715	136	1.96	736	138	1.85	728	1.98	49.95	3.58
100404	301796	C	122	3.06	42	10.99	212	1.19	1409	179	1.10	1370	190	1.13	1383	2.73	30.51	6.27
100411	301297	C	157	3.91	79	11.29	210	2.17	1031	122	1.11	1336	152	1.48	1229	2.18	39.96	4.51
100227	301786	R	179	2.44	243	10.40	253	1.27	2006	202	1.33	2028	219	1.30	2020	3.14	35.10	9.47
100306	301655	C	474	2.24	85	11.05	641	2.13	1121	577	1.66	1186	594	1.82	1163	3.86	22.05	2.29
100359	301651	C	249	3.00	92	12.21	232	1.34	1345	179	1.14	1247	197	1.21	1288	1.41	16.29	2.76
100109	301775	C	161	4.39	23	3.80	511	3.18	1642	489	3.32	1738	496	3.27	1704	3.20	39.62	3.34
100117	301134	C	450	1.49	82	11.24	562	2.32	1135	660	1.58	1045	614	1.43	1076	3.98	22.17	[illegible]
100124	301264	C	492	7.51	91	8.42	780	3.52	1196	656	3.50	847	499	3.50	917	4.50	42.41	1.56
100158	301737	C	456	4.40	125	10.89	471	3.08	1179	552	2.65	1149	537	2.80	1159	3.42	33.92	2.63
100164	301076	C	466	2.25	93	11.47	416	1.77	1441	485	1.48	1147	463	1.58	1256	2.96	19.74	2.09
100165	301271	C	475	3.48	47	13.45	460	3.47	1035	307	2.01	1255	360	2.52	1195	2.32	30.53	1.94
100171	301513	C	149	[illegible]	127	14.13	416	1.55	1553	247	0.91	1465	319	1.13	[illegible]	2.05	13.69	2.70
100163	301781	R	136	5.82	55	5.45	644	3.42	1681	597	3.75	1909	607	3.43	1369	3.91	43.98	2.82
100203	301017	C	[illegible]	[illegible]	15	10.49	1096	0.33	1430	726	0.29	1138	823	0.28	1261	7.29	4.04	2.98

COLD AND HOT START TEST DATA — KANSAS CITY, PHASE III — PROCESSING DATE= 3/27/72

CAR NO	RUN NO	S	CYCLE 2 IDLE HC	CYCLE 2 IDLE CO	CYCLE 2 IDLE NO	CYCLE 2 IDLE CO2	CYCLES 3-6 HC	CYCLES 3-6 CO	CYCLES 3-6 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
100260	301019	M	765	0.16	110	10.99				452	0.25	999						
100228	301761	C	367	2.69	97	12.56	739	0.92	1770	1358	2.69	1945	1129	2.07	1886	8.95	30.80	4.89
100229	301996	C	798	0.79	78	13.35	254	1.75	1126	176	1.14	1127	205	1.35	1128	1.62	20.09	2.39
100268	301865	C	1235	0.26	99	10.78	530	0.73	898	510	0.39	958	520	0.50	932	4.12	7.44	1.99
100270	301774	C	112	1.01	139	10.60	157	0.83	3419	127	0.62	3362	137	0.82	3380	1.20	10.26	9.23
100271	301851	C	71	0.11	288	13.31	153	0.89	1969	107	0.63	1766	123	0.85	1732	1.08	10.76	3.92
100283	301872	C	253	3.96	82	11.45	990	1.42	2179	229	0.76	2072	284	1.00	2109	2.26	14.89	4.42
100299	300986	C	239	3.42	129	12.44	299	2.19	721	181	1.89	723	221	1.98	722	1.75	20.46	1.50
100301	301342	C	569	2.13	101	11.91	365	1.28	691	289	1.09	693	315	1.16	675	2.79	19.20	1.56
100374	301652	C	598	2.28	93	11.67	495	1.09	1223	375	0.69	1326	417	0.82	1290	3.30	12.20	3.05
100270	301782	R	113	0.51	126	10.57	296	0.82	2596	138	0.38	2875	193	0.53	2777	1.70	8.77	7.49

TABLE B-4

Houston

Phase I

COLD AND HOT START TEST DATA — HOUSTON, PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200239	100301	C	792	1.29	68	13.03	333	1.74	1012	334	1.00	1098	331	1.25	1068	3.08	21.72	3.37
200262	100328	C	294	4.08	237	12.15	431	2.31	1095	308	1.11	1602	351	1.52	1424	3.61	29.39	5.19
200262	100332	R	299	4.53	299	11.88	393	2.59	1066	316	1.29	1568	342	1.74	1392	3.52	33.45	4.92
200271	100340	C	89	0.26	434	13.06	369	0.93	1231	391	0.42	1904	383	0.59	1685	3.54	10.25	4.79
200297	100376	C	148	2.61	380	13.16	317	1.85	1589	301	1.20	2069	304	1.42	1900	2.83	24.48	5.53
200309	100388	C	137	2.98	489	13.33	332	1.84	1189	283	1.58	1566	300	1.67	1434	2.77	29.02	4.39
200314	100395	C	185	3.79	314	11.71	341	2.10	1308	292	1.69	1939	309	1.83	1718	2.86	31.80	5.49
200332	100414	C	273	4.43	304	12.28	373	1.43	1572	299	1.25	1929	324	1.31	1804	3.33	25.33	6.31
200337	100419	C	169	5.82	185	11.41	716	5.69	177	260	5.09	183	419	5.29	180	3.87	91.95	0.57
200347	100429	C	113	0.64	388	14.77	262	1.16	1008	264	0.56	1356	263	0.77	1234	2.43	13.38	4.03
200351	100434	C	238	6.30	180	10.83	294	2.52	1409	216	1.86	1943	243	2.09	1756	2.81	45.49	7.01
200356	100440	C	136	0.43	229	14.00	346	0.99	847	319	0.36	1103	328	0.58	1013	3.03	10.08	3.28
200356	100441	H	90	0.39	276	14.22				225	0.36	1182						
200358	100443	C	296	4.87	116	11.73	312	2.03	1345	297	2.94	1042	302	2.62	1148	3.50	57.04	4.76
200373	100462	C	277	4.55	481	10.81	490	2.24	917	283	1.96	1207	355	2.05	1105	4.11	44.63	4.49
200393	100480	C	315	4.07	227	12.68	410	2.65	2001	425	2.01	2352	419	2.23	2229	3.87	38.76	6.32
200343	100481	H	206	4.51	186	12.51				384	1.77	1299						
200395	100507	C	232	6.00	348	11.25	336	1.83	1617	232	1.48	2022	268	1.60	1880	2.76	30.93	5.66
200003	100004	C	305	8.90	-7	7.41	364	3.20	-8	260	2.39	-6	296	2.67	-6	3.76	63.74	-0.02
200056	100074	C	302	3.63	-2	11.39	361	2.45	-4	218	0.73	108	268	1.33	-70	2.76	25.71	-0.19
200122	100159	C	87	1.02	488	13.62	325	3.50	584	161	2.34	801	218	2.74	725	2.49	58.78	2.64
200123	100160	C	274	7.64	320	9.86	361	3.33	1250	310	3.03	1519	327	3.13	1424	3.02	54.40	4.20
200191	100232	C	245	3.81	188	12.45	280	2.51	1322	191	0.98	1946	222	1.51	1728	2.26	29.19	5.37
200199	100241	C	103	0.59	-98	14.08	246	1.22	-98	160	0.47	-98	190	0.73	-98	1.75	12.68	-9.00
200209	100265	C	261	4.98	89	11.06	328	3.39	855	228	1.44	1478	263	2.12	1260	2.70	40.99	4.41
200215	100273	C	256	4.06	79	11.90	1867	6.32	303	363	2.90	579	889	4.09	482	8.23	71.09	1.55
200234	100295	C	149	0.19	323	13.94	344	3.04	1315	202	0.45	2387	251	1.35	2012	2.58	26.10	7.10
200238	100299	C	118	1.21	89	13.48	288	1.61	1455	210	0.88	1340	237	1.13	1380	2.19	19.64	4.36
200238	100300	H	116	1.20	68	13.23				259	0.91	1286						
200259	100325	C	291	2.98	306	12.28	297	1.68	1492	228	0.89	2003	252	1.16	1824	2.59	22.42	6.33
200279	100351	C	193	4.25	450	12.22	433	2.09	1294	234	1.14	1652	303	1.47	1526	3.15	28.76	4.87
200284	100357	C	715	11.49	108	6.74	610	4.28	1272	378	3.47	1583	459	3.75	1474	4.72	72.52	4.85
200293	100371	C	386	3.34	625	12.18	319	1.53	1638	268	1.20	1919	285	1.31	1820	2.63	22.76	5.07
200295	100375	R	327	3.52	484	12.66	320	1.43	1627	239	1.05	1839	267	1.18	1764	2.47	20.50	5.21
200310	100389	C	186	0.66	598	14.76	269	2.42	1715	194	0.52	2684	220	1.18	2344	2.55	25.68	8.99
200317	100398	C	180	1.76	327	13.56	231	1.73	1414	148	0.57	1807	177	0.97	1669	1.82	18.75	6.28
200321	100402	C	232	3.95	254	11.81	299	2.82	1659	149	1.25	2495	227	1.79	2202	2.33	34.61	7.03
200013	100017	C	85	0.15	-14	13.05	296	2.09	-10	215	0.45	-9	243	1.02	-9	2.81	22.20	-0.02
200015	100019	C	239	2.55	-6	13.18	410	2.39	-1	286	1.67	-3	329	1.92	-2	3.81	41.80	-0.10
200018	100553	C	309	2.09	279	12.93	359	2.05	1061	285	0.93	1776	310	1.32	1525	3.94	31.51	6.96
200022	100469	C	3189	3.70	144	10.97	2419	4.51	252	2708	5.03	202	2606	4.84	219	30.16	105.38	0.88
200025	100030	C	293	6.04	-8	10.51	365	3.07	-8	309	2.29	-8	328	2.56	-8	3.80	55.73	-0.99
200025	100031	H	318	6.92	-4	9.92				298	2.19	-8						
200038	100498	C	203	1.50	259	13.01	285	1.43	1786	241	0.67	2655	256	0.93	2330	3.49	23.84	9.33
200043	100501	C	165	0.40	470	14.07	263	1.97	1293	188	0.58	1955	214	1.06	1723	2.72	25.30	6.59
200043	100502	H	138	0.64	307	14.73				158	0.56	1945						
200055	100072	C	249	0.33	-7	12.75	409	1.85	-5	358	0.42	-7	375	0.92	-6	4.76	21.96	-0.02
200055	100073	H	191	0.26	-6	12.80				318	0.31	-7						
200073	100494	C	242	5.76	101	11.45	314	4.49	909	248	3.22	689	271	3.66	625	3.44	87.38	2.32
200076	100525	C	262	1.97	170	12.85	475	3.01	877	332	1.09	1664	382	1.76	1388	4.42	38.31	5.82
200095	100124	C	675	9.53	50	8.85	427	3.04	1117	382	2.20	1739	397	2.49	1521	5.04	59.44	5.82
200095	100125	H	213	6.21	88	10.61				152	1.62	705						
200099	100130	C	154	0.99	301	12.73	336	1.55	1712	304	0.64	2441	315	0.95	2185	4.00	22.67	8.37
200108	100141	C	1078	0.18	116	9.13	595	0.64	1037	722	0.25	1269	677	0.38	1187	8.80	9.07	5.02
200108	100142	H	131	0.22	134	13.10				176	0.26	1165				2.23	6.20	4.90
200110	100145	C	106	0.49	297	13.42	260	1.67	1075	192	0.44	1683	215	0.87	1470	2.73	20.76	6.22
200111	100146	C	136	0.99	266	12.68	269	1.79	1157	254	0.52	2006	259	0.96	1708	3.29	22.91	7.27
200169	100212	C	192	1.76	68	13.38	367	3.56	733	256	1.29	1358	294	2.08	1140	3.40	45.28	4.53
200169	100217	R	190	2.24	93	13.18	325	3.22	750	243	1.37	1336	271	2.01	1131	3.14	43.76	4.43
200423	100539	C	149	0.20	177	13.71	453	1.06	1069	469	0.43	1546	463	0.65	1379	4.82	12.71	5.03
200423	100540	H	90	0.21	193	13.58				307	0.33	1214						
200007	100008	C	180	2.99	-3	11.98	388	2.38	-4	276	1.59	-5	315	1.86	-4	4.00	44.40	-0.10
200012	100016	C	229	4.90	-5	11.20	358	2.48	-6	263	2.06	-6	297	2.20	-5	4.25	56.42	-0.02
200032	100477	C	-98	0.81	117	11.98	-98	1.22	1770	-98	0.66	1999	-98	0.85	1918	*****	21.79	9.31
200033	100040	C	696	10.73	-2	7.09	544	5.63	0	446	5.43	0	480	5.49	0	6.55	140.79	-0.10
200042	100467	C	119	0.85	76	13.69	210	0.83	485	175	0.53	613	187	0.63	568	2.55	16.15	2.71
200100	100143	C	286	4.60	105	11.59	361	2.56	1616	261	2.35	1589	295	2.42	1598	3.75	57.77	6.77
200109	100144	H	240	3.82	93	11.98				246	2.14	1455						
200128	100165	C	177	3.13	247	11.77	241	2.09	1786	185	1.37	2354	204	1.59	2155	2.59	37.95	8.76
200130	100167	C	128	1.77	73	12.44	626	4.69	602	191	1.44	1116	343	2.57	936	4.33	61.22	3.86
200138	100175	C	166	0.92	66	13.20	284	1.60	1251	190	1.42	1378	352	1.48	1334	4.47	35.26	5.50
200147	100186	C	247	4.85	44	11.00	330	2.27	1276	290	2.07	1558	297	2.13	1459	3.77	50.85	5.10
200158	100199	C	390	6.80	70	10.17	383	3.93	980	325	3.17	1134	345	3.43	1090	4.71	87.96	5.17
200162	100203	C	210	3.35	66	12.03	316	2.24	1139	249	1.80	1376	272	1.95	1293	3.45	46.55	5.63
200194	100246	C	127	1.09	68	13.08	268	1.71	1510	206	0.70	1951	227	1.05	1797	2.88	25.06	7.15
200201	100214	C	285	5.19	55	10.25	531	3.57	1095	360	2.87	1580	419	3.11	1410	5.72	79.76	5.96
200204	100257	C	137	2.50	72	12.78	993	1.72	1173	614	0.99	1391	746	1.24	1314	10.19	31.79	6.10
200204	100258	H	164	2.13	70	13.05				777	0.88	1899						
200214	100274	C	301	5.95	55	10.35	312	2.55	834	293	2.56	844	299	2.55	906	3.48	55.52	3.64
200217	100275	C	107	0.32	46	13.37	262	1.42	864	227	1.35	717	239	1.37	781	3.26	35.13	3.67

COLD AND HOT START TEST DATA — HOUSTON, PHASE I — PROCESSING DATE- 03/27/77

			CYCLE 7 IDLE				CYCLES 1-6			CYCLES 6-7			COMPOSITE			MASS EQUIVALENT		
CAR NO	RUN NO	S	HC	CO	NO	CO2	HC	CO	NO	HC	CO	NO	HC	CO	NO	HC	CO	NOXC
200217	100279	H	125	1.06	66	13.19	1459	6.34	113	285	3.04	190	695	4.78	161	9.49	122.58	0.78
200208	101403	C	194	3.79	65	10.86	492	3.38	1036	251	1.23	1927	335	1.98	1615	4.25	47.16	6.64
200113	100148	C	340	5.62	90	11.14	459	3.69	720	332	2.53	1007	376	2.93	906	5.64	82.61	4.37
200124	100141	C	139	1.91	171	13.14	230	2.20	1309	184	1.33	1836	200	1.63	1651	3.00	45.95	7.92
200127	100164	C	233	7.19	92	9.84	179	1.91	716	152	1.62	940	161	1.72	861	2.19	44.10	3.75
200149	100188	C	156	3.45	66	12.07	248	2.52	945	195	2.08	1089	213	2.23	1039	2.90	57.18	3.89
200157	100199	C	713	9.39	44	9.67	442	3.49	419	381	2.04	648	402	2.54	568	5.49	65.13	2.72
200180	100231	C	604	10.56	44	7.76	491	4.14	724	351	3.37	948	399	3.63	870	5.45	93.09	3.58
200224	100293	C	236	1.22	66	12.63	523	3.84	314	196	0.70	700	310	1.79	565	3.94	42.73	2.53
200246	100309	C	405	7.30	-804	9.82	281	1.66	-805	294	2.11	-679	289	1.95	-723	3.94	90.00	-7.86
200264	100331	C	480	4.61	39	7.48	376	4.86	281	408	3.98	566	394	4.28	486	5.03	102.18	2.03
200266	100334	C	958	9.32	62	8.70	347	3.61	826	341	3.50	1091	343	3.64	998	4.68	93.35	4.68
200285	100358	C	256	3.07	66	11.02	381	4.32	492	259	2.07	910	294	2.85	763	3.73	68.04	3.09
200298	100377	C	279	6.30	90	10.58	312	1.79	1461	257	1.83	1565	276	1.81	1515	3.76	46.41	5.89
200307	100388	C	496	9.82	78	10.95	1220	5.37	405	256	2.45	775	593	3.67	645	7.54	82.84	2.64
200316	100397	C	150	2.34	160	13.57	202	1.40	1067	156	0.97	1494	172	1.29	1344	2.34	33.09	6.70
200355	100433	C	1660	11.49	75	6.56	1054	9.46	116	783	8.20	213	877	8.29	179	11.97	212.61	0.81
200350	100438	H	1928	11.49	72	6.34	1181	5.83	133	906	8.11	219	1002	8.18	188	13.68	209.78	0.89
200029	100034	C	40	0.14	0	12.07	272	1.15	0	192	0.39	0	220	0.65	0	2.26	12.56	-0.10
200075	100100	C	89	0.15	-7	12.80	278	0.88	-2	225	0.25	-1	243	0.47	-1	2.50	9.08	-0.10
200193	100245	C	133	0.74	211	14.06	332	1.89	1414	214	0.49	1967	255	0.97	1773	2.62	18.75	5.72
200235	100296	C	121	0.55	261	14.37	271	0.89	1814	230	0.39	2271	244	0.53	2111	2.51	10.24	7.46
200293	100369	C	389	2.43	722	13.48	346	1.53	2256	370	1.01	2660	361	1.19	2518	4.18	25.90	8.95
200293	100374	H	397	2.65	620	13.09	348	1.77	2238	317	0.86	2884	327	1.04	2657	3.79	22.64	9.85
200344	100425	C	669	4.98	175	11.73	498	1.91	1798	462	0.97	2288	474	1.15	2116	4.88	22.23	7.71
200357	100442	C	119	2.79	370	13.59	290	1.72	1560	216	1.18	1778	241	1.36	1701	2.51	26.60	6.22
200359	100444	C	796	0.20	242	11.91	1776	0.79	2412	997	1.09	2256	1267	0.98	2310	14.71	21.33	9.59
200370	100457	C	175	0.41	548	14.19	303	1.85	2239	230	0.48	2852	255	0.95	2637	2.62	18.36	9.54
200370	100458	H	181	9.53	132	11.65				293	1.22	2614						
200382	100479	C	220	4.21	312	12.57	251	1.58	2338	213	1.96	2059	226	1.82	2156	2.62	39.62	8.88
200385	100485	C	157	0.72	237	14.19	266	0.93	1213	187	0.57	1593	214	0.69	1459	2.20	13.34	5.19
200386	100489	C	211	6.45	291	11.17	410	1.88	1552	393	2.03	1530	398	1.97	1537	3.68	36.24	4.29
200403	100536	C	148	2.64	122	13.72	219	1.32	1767	167	1.17	1687	185	1.22	1714	2.14	26.56	6.79
200411	100557	C	244	3.50	129	13.08	241	1.18	2353	218	0.85	2743	226	0.96	2606	2.62	20.89	11.55
200412	100559	C	117	0.44	245	14.40	263	1.55	1524	205	0.66	1805	225	0.97	1706	2.31	18.75	6.32
200131	100148	C	87	1.00	113	14.17	259	2.06	871	220	1.56	962	234	1.74	930	2.16	30.54	2.79
200160	100201	C	165	3.51	89	12.73	381	2.05	870	317	1.87	1052	339	1.93	989	3.13	33.54	3.21
200263	100330	C	216	6.84	120	10.60	315	1.54	1681	269	2.09	1730	285	1.89	1712	2.93	36.54	6.06
200269	100337	C	178	2.89	159	13.62	236	1.16	1450	198	0.81	1695	211	0.80	1609	2.17	15.46	5.01
200276	100346	C	107	2.59	283	13.16	365	3.69	700	294	3.31	844	318	3.44	793	2.94	59.79	2.27
200298	100364	C	280	5.65	503	11.13	436	1.85	1338	407	1.63	1640	416	1.70	1334	3.85	29.54	3.73
200322	100403	C	78	0.19	207	13.49	229	0.32	1733	257	0.35	1718	247	0.33	1723	2.28	5.73	4.92
200323	100404	C	154	0.52	319	14.67	241	0.46	2243	251	0.32	2729	261	0.36	2558	2.68	6.95	8.13
200324	100405	C	63	0.36	176	15.03	259	2.78	627	193	1.01	1034	214	1.62	891	1.99	28.15	2.54
200327	100408	C	290	8.63	296	9.40	473	2.51	1265	349	2.03	1544	392	2.19	1446	4.03	42.28	5.04
200327	100409	H	201	7.00	207	13.63				263	1.53	1710						
200335	100417	C	46	0.18	349	14.63	214	0.57	1576	204	0.22	1797	207	0.34	1719	1.91	5.90	5.41
200336	100418	C	183	2.71	161	13.86	228	0.79	1600	195	0.57	1726	206	0.64	1681	2.12	12.37	5.88
200339	100421	C	164	2.06	282	13.54	235	0.77	1565	192	0.52	1886	207	0.60	1773	2.13	11.60	6.43
200375	100464	C	78	1.14	198	14.16	286	2.23	914	198	1.11	1244	224	1.50	1128	2.11	26.07	3.66
200388	100493	C	111	0.20	538	14.48	287	0.72	2451	221	0.23	2903	244	0.40	2744	2.51	7.73	8.27
200398	100499	H	122	0.23	476	14.40	274	0.84	2394	226	0.24	2826	244	0.38	2674	2.51	7.34	8.29
200502	101071	C	67	0.47	197	14.20	317	1.84	1596	225	0.37	2213	257	0.88	1997	2.22	14.27	5.11
200504	101219	C	260	6.70	38	9.27	534	5.00	743	425	2.19	1869	463	3.17	1474	4.00	51.42	3.75
200505	101255	C	176	4.89	62	8.66	301	2.02	1879	228	1.28	2450	253	1.53	2250	2.42	27.49	6.52
200506	101263	C	439	8.84	91	9.94	427	4.05	998	333	1.47	1959	365	2.37	1622	3.49	42.59	4.56
200001	100552	C	997	9.67	80	8.94	719	1.43	1959	552	1.39	2053	610	1.40	2020	7.75	33.42	9.23
200002	100003	C	171	0.92	-4	13.71	237	0.63	-7	195	0.41	-11	209	0.48	-9	2.65	11.45	-0.03
200011	100014	C	224	3.63	-6	12.39	380	1.74	-4	260	0.91	-5	302	1.20	-4	3.84	28.64	-0.01
200011	100015	H	793	6.50	-13	9.98				598	1.44	-8						
200020	100510	C	421	7.38	102	10.30	435	1.40	2356	385	1.64	2534	402	1.55	2471	4.66	33.74	8.53
200024	100565	C	330	3.49	92	12.81	421	1.81	1951	350	0.83	1878	374	0.82	1903	4.33	17.85	8.37
200029	100491	C	174	0.71	216	14.64	391	1.11	1736	362	0.60	2056	372	0.77	1944	4.56	17.74	7.21
200104	100137	C	255	4.65	152	11.88	304	1.61	1546	266	0.93	1904	273	1.16	1778	3.23	25.25	6.84
200107	100140	C	672	8.78	72	9.19	584	3.31	1277	512	2.12	1819	537	2.53	1629	7.33	64.88	7.39
200114	100149	C	450	6.19	509	12.81	469	0.51	812	840	0.46	842	80	0.47	831	10.65	12.05	3.65
200114	100150	H	91	0.13	391	13.73				275	0.32	2416						
200121	100159	C	228	3.26	451	12.85	295	1.46	1552	247	0.97	1977	264	1.14	1828	3.35	27.16	7.42
200134	100171	C	259	2.32	108	13.16	373	1.37	1561	292	0.70	1879	321	0.94	1768	4.09	22.39	7.29
200202	100255	C	240	5.21	79	11.50	421	2.91	1291	281	1.34	1849	329	1.88	1653	4.49	48.21	7.68
200209	100259	C	417	7.85	28	9.62	442	2.59	1486	365	1.79	1713	391	2.06	1634	4.53	44.84	8.44
200205	100260	H	414	7.30	52	9.92				394	1.90	1992						
200211	100268	C	314	4.11	70	10.91	484	1.33	1574	351	1.07	1779	397	1.16	1708	4.60	25.25	8.74
200226	100285	C	295	1.49	84	13.37	411	1.57	1674	404	0.59	2206	406	0.93	2020	4.70	20.24	8.25
200226	100291	H	246	1.97	91	13.59	414	1.28	1433	368	0.68	2085	384	0.99	1927	4.45	19.17	7.66
200422	100563	C	168	1.57	137	14.38	334	1.71	1257	291	0.88	1821	307	1.17	1623	3.90	27.92	7.85
200422	100564	H	258	1.43	186	14.12				206	0.68	1748						
200507	101350	C	279	1.68	149	14.03	340	1.01	1812	291	0.54	2232	304	0.71	2095	3.96	15.62	7.64
200057	100075	C	133	5.67	-2	10.97	350	2.31	-5	277	1.52	-6	302	1.79	-5	3.50	34.96	-0.11
200071	100092	C	279	1.92	-1	13.38	333	1.74	-3	251	0.50	-3	274	0.93	-3	3.79	23.84	-0.11

COLD AND HOT START TEST DATA — HOUSTON, PHASE 1 — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-6 HC	CYCLES 1-6 CO	CYCLES 1-6 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200071	100093	H	277	0.98	-1	14.42				240	0.43	-3						
200192	100233	C	615	8.03	86	8.92	405	1.97	1638	349	1.95	2032	384	1.95	1896	4.26	42.45	6.83
200213	100270	C	997	10.10	48	8.44	796	2.61	1195	592	1.95	1588	648	2.18	1437	8.85	55.90	6.83
200213	100271	H	420	4.79	86	11.63				382	1.35	1595						
200231	100292	C	997	9.67	44	8.95	697	2.41	488	521	2.14	617	582	2.23	572	6.06	43.63	2.04
200234	100297	C	965	8.20	77	9.84	456	1.87	932	329	1.49	1225	373	1.62	1122	4.74	38.67	4.89
200240	100311	C	379	7.58	66	9.96	380	5.80	429	382	1.71	1466	329	3.14	1103	4.18	74.98	4.88
200240	100326	C	564	6.49	73	10.40	449	0.96	1871	470	1.15	1918	467	1.08	1901	5.35	23.50	7.43
200244	100359	C	241	7.09	87	10.23	916	2.96	1216	223	1.99	1654	255	2.29	1500	2.95	40.85	5.42
200244	100362	R	253	7.04	78	13.57	263	2.07	1227	215	1.94	1279	231	1.98	1260	2.67	43.10	3.97
200287	100360	C	248	3.40	191	13.07	305	1.59	1564	245	1.08	2202	265	1.25	1978	3.61	32.05	8.44
200291	100369	C	217	1.91	238	13.51	453	7.14	242	202	0.71	1835	289	2.96	1280	3.94	75.91	5.35
200302	100381	C	320	6.19	117	10.90	329	1.63	1678	293	1.37	2101	305	1.46	1952	3.87	34.85	8.09
200308	100387	C	307	5.64	144	11.74	323	1.71	1192	267	1.20	1516	286	1.37	1381	3.31	29.82	5.29
200311	100391	C	256	1.51	203	14.21	270	1.00	519	176	0.52	718	208	0.68	648	2.41	14.80	2.42
200311	100392	R	277	2.16	148	13.66	247	0.86	907	179	0.56	672	202	0.66	614	2.34	14.36	2.49
200326	100407	C	360	9.24	83	8.98	318	2.14	1603	264	2.06	1769	282	2.08	1710	3.27	45.28	6.43
200061	100091	C	385	4.25	-6	11.98	2021	1.95	-13	424	0.86	-10	982	1.24	-11	12.48	29.60	-0.03
200087	100114	C	256	5.26	100	11.39	293	2.38	886	215	1.05	1204	242	1.51	1092	3.30	38.72	4.32
200099	100129	C	223	3.03	134	13.03	266	1.43	1137	202	1.11	1153	224	1.22	1147	2.84	29.12	4.39
200100	100131	C	337	8.47	84	9.44	348	2.82	1003	278	1.46	1446	307	1.93	1290	4.12	49.49	5.30
200100	100132	H	399	8.13	63	9.49				323	1.84	1850						
200139	100176	C	179	3.78	120	14.39	178	0.63	774	154	0.48	907	162	0.53	860	2.21	13.56	3.96
200153	100193	C	371	6.88	61	10.40	372	2.08	1185	288	1.15	1531	317	1.47	1410	4.33	37.69	6.75
200153	100194	H	225	2.71	89	13.18				234	0.75	1644						
200170	100213	C	287	5.71	73	10.99	314	1.21	1078	260	1.06	1122	278	1.50	1107	3.79	38.46	5.20
200172	100218	C	94	0.08	61	6.97	213	0.56	1380	198	0.32	1477	203	0.40	1443	2.77	10.25	6.69
200175	100221	C	220	4.65	86	11.61	190	1.34	700	167	1.39	897	175	1.37	828	2.39	35.13	3.81
200190	100242	C	197	2.54	-98	13.32	226	0.77	-99	186	0.60	-98	200	0.65	-99	2.73	16.63	*****
200191	100243	C	369	7.49	-98	10.04	403	6.87	-99	302	2.62	-98	337	4.10	-98	4.28	97.67	*****
200195	100247	C	288	5.10	63	8.67	337	2.30	1688	307	2.01	1930	317	2.00	1846	3.67	43.54	6.70
200208	100261	C	273	6.36	66	10.69	319	1.96	964	254	1.35	1276	275	1.56	1167	3.75	40.00	5.42
200236	100262	H	278	4.75	77	11.66				257	1.07	1758				3.51	27.43	8.16
200209	100266	C	258	4.16	68	11.94	327	2.43	820	271	1.23	1236	290	1.64	1091	3.96	42.06	5.05
200213	100267	C	234	4.96	70	11.61	378	3.67	385	294	3.38	467	323	3.68	438	4.41	89.24	2.03
200170	100222	R	270	5.52	66	11.29	271	1.16	1133	242	1.60	1102	252	1.44	1113	3.44	36.92	5.15
200023	100027	C	215	3.13	-1	11.50	252	3.02	0	181	3.11	0	205	3.07	0	2.95	83.15	-0.10
200040	100079	C	434	10.02	-8	8.44	335	3.83	-2	238	2.59	-3	271	3.02	-2	3.70	77.45	-0.10
200060	100080	H	330	9.24	-16	8.81				161	2.21	-8						
200069	100089	C	333	6.95	-9	9.97	353	2.95	-4	259	1.99	-5	291	2.32	-4	4.19	62.83	-0.10
200070	100537	C	228	5.42	146	11.97	224	2.08	998	176	1.35	1245	192	1.40	1158	2.62	41.03	5.55
200096	100126	C	383	6.27	108	10.57	489	2.46	771	273	1.70	1006	349	1.96	923	5.02	53.08	4.00
200101	100133	C	4044	11.44	110	5.74	1283	4.76	930	1402	3.24	1766	1360	3.77	1473	19.62	102.11	7.05
200101	100134	H	632	7.97	132	9.48				403	2.34	1517						
200203	100256	C	377	5.88	79	10.95	582	3.09	973	348	2.46	1038	429	2.68	1015	6.18	72.59	4.97
200254	100318	C	452	8.17	-698	9.21	396	3.43	-362	304	2.63	-604	336	2.90	-519	4.84	78.54	-7.29
200315	100396	C	458	9.93	98	8.84	403	2.71	854	294	2.62	1063	332	2.65	989	4.53	67.96	4.64
200348	100430	C	285	5.21	123	11.66	289	2.18	1494	252	2.12	1604	264	2.14	1565	3.80	57.96	7.44
200348	100431	H	242	5.42	116	11.81				204	1.96	1279						
200364	100450	C	187	1.49	185	14.40	227	1.69	936	169	0.62	1295	189	0.99	1169	2.72	26.80	6.03
200394	100506	C	275	6.70	94	9.44	255	1.87	1157	204	2.45	1094	221	2.24	1116	3.18	60.67	4.69
200396	100516	C	541	11.01	86	8.58	405	3.91	1056	344	3.18	1301	365	3.43	1215	5.26	92.90	5.14
200407	100547	C	269	4.05	120	12.96	257	2.40	749	201	1.51	943	220	1.82	875	3.17	49.29	4.79
200414	100560	C	310	5.99	105	11.03	322	3.04	872	255	2.82	928	278	2.89	908	4.01	78.27	4.27
200070	100538	R	254	6.19	110	11.22	266	2.54	917	198	1.59	1167	221	1.92	1079	3.01	49.24	5.17
200085	100112	C	753	4.21	-8	12.22	307	2.51	-3	297	0.97	-3	274	1.50	-3	3.17	32.65	-0.10
200268	100334	C	185	1.52	250	13.88	580	3.40	565	242	1.44	927	380	2.12	800	4.17	46.15	3.14
200282	100354	C	243	3.04	235	13.19	316	1.76	1378	217	0.49	1689	251	0.93	1555	2.91	20.24	5.52
200328	100410	C	196	3.37	209	13.23	198	2.02	728	158	1.26	884	172	1.52	829	1.99	33.09	3.24
200329	100411	C	276	4.06	338	12.51	391	3.16	1031	225	1.22	1568	283	1.89	1380	3.28	41.14	5.42
200372	100461	C	703	10.77	477	8.17	381	4.07	728	347	2.15	1196	358	2.82	1032	4.15	61.40	4.18
200374	100443	C	270	3.12	198	12.67	768	3.23	1586	233	0.77	2375	429	1.63	2098	4.87	35.48	8.55
200380	100472	C	146	0.30	478	14.27	227	1.78	929	141	0.34	1409	171	0.84	1240	1.98	16.29	5.08
200392	100504	C	173	0.24	838	13.98	287	2.12	1472	219	0.62	1863	242	1.14	1726	2.80	24.81	5.85
200398	100521	C	305	5.86	228	9.94	309	3.25	1147	224	0.98	1896	253	1.77	1647	2.93	38.53	5.90
200399	100526	C	366	6.84	203	10.43	384	2.82	1292	307	1.94	1736	333	2.24	1593	3.86	48.76	6.45
200400	100529	C	102	0.14	195	13.50	164	0.69	737	131	0.23	780	142	0.39	764	1.64	8.48	2.93
200415	100561	C	256	5.80	114	11.76	209	2.44	470	154	1.14	556	173	1.59	525	2.00	34.61	2.15
200416	100562	C	278	3.37	382	12.98	368	2.29	999	262	0.89	1441	292	1.36	1282	3.38	29.60	5.29
200417	100564	C	336	5.28	218	11.36	293	2.12	904	249	1.19	1114	284	1.51	1040	3.06	32.87	4.57
200398	100527	R	327	5.72	173	9.83	336	3.25	1047	266	1.04	1761	290	1.81	1512	3.36	39.40	6.12
200072	100094	C	99	0.32	-1	11.43	169	0.63	0	89	0.23	-3	114	0.36	-1	1.34	7.83	-0.10
200072	100095	H	146	0.08	-10	12.53				137	0.13	-11						
200218	100276	C	197	0.13	89	13.27	395	2.43	717	351	0.89	1079	353	1.44	952	4.09	31.34	3.84
200231	100290	C	208	4.83	70	11.40	267	3.24	909	156	1.53	688	194	2.14	625	2.24	46.59	3.55
200243	100305	C	226	7.02	55	10.51	191	2.27	535	152	1.05	778	163	1.47	714	1.72	32.00	2.88
200275	100338	C	116	0.74	184	14.18	189	1.92	998	150	0.56	831	161	1.03	749	1.88	22.42	2.66
200270	100339	H	200	2.50	93	13.25				217	0.55	1386				2.51	11.97	4.93
200240	100352	C	212	4.44	329	12.14	238	2.40	1448	166	1.00	2173	191	1.52	1913	2.21	33.09	6.82
200292	100367	C	170	2.69	141	12.83	115	1.32	617	79	0.49	726	91	0.78	687	1.05	14.97	2.43

COLD AND HOT START TEST DATA — HOUSTON, PHASE I — PROCESSING DATE- 3/27/72

CAR NO	RUN NO	S	CYCLE 1 IDLE HC	CYCLE 1 IDLE CO	CYCLE 1 IDLE NO	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200292	100368	H	212	2.95	138 17.77				89	0.56	462						
200296	100370	C	110	0.17	288 13.18	300	1.69	1076	208	0.27	1718	240	0.76	1493	2.78	16.54	5.25
200306	100369	C	1900	0.28	300 10.02	866	0.75	874	996	0.38	931	950	0.90	911	11.01	10.89	3.51
200329	100401	C	204	4.09	255 12.84	219	2.69	1029	184	1.29	1253	196	1.77	1174	2.27	38.53	5.01
200334	100416	C	131	0.84	140 14.60	228	2.46	596	172	0.74	927	190	1.34	811	2.20	24.17	3.32
200338	100420	C	61	0.10	443 7.03	181	0.97	1297	145	0.49	1646	157	0.65	1523	1.82	14.15	6.04
200353	100436	C	280	7.96	127 10.16	249	1.92	7159	200	1.26	1346	217	1.49	1280	2.51	32.43	5.10
200362	100447	C	221	0.35	322 14.13	222	1.82	707	155	0.31	888	178	0.83	824	2.06	18.07	3.36
200367	100448	H	290	1.40	477 14.11				184	0.52	906						
200369	100455	C	177	0.17	314 12.76	284	2.29	827	184	0.29	1372	219	0.98	1181	2.78	23.39	5.61
200391	100509	C	188	3.26	366 13.33	218	2.56	1830	157	0.66	2642	178	1.32	2357	2.06	28.73	8.00
200369	100456	R	180	0.15	350 12.98	270	2.26	864	180	0.28	1421	211	0.97	1226	2.68	23.15	5.47
200010	100012	C	691	9.87	-2 10.10	749	2.83	-8	535	1.83	-6	609	2.17	-6	7.06	47.24	-0.10
200010	100013	H	373	3.41	-12 12.29				333	1.27	-9						
200026	100032	C	201	2.10	-6 13.36	380	2.91	-2	206	0.79	-3	266	1.39	-2	3.08	30.26	-0.10
200030	100036	C	563	3.67	-9 12.40	495	2.49	-1	439	1.13	-1	458	1.60	-1	5.82	38.19	-0.10
200030	100037	H	360	0.89	-11 13.92				298	0.55	-11						
200035	100044	C	386	7.92	-13 10.07	171	2.46	-5	342	2.38	-5	352	2.40	-5	4.08	52.25	-0.01
200040	100049	C	225	2.27	-11 13.25	375	2.80	-6	263	0.88	-6	302	1.55	-5	3.50	33.74	-0.10
200040	100050	H	200	0.89	-2 13.63				273	0.68	-12						
200051	100046	C	602	5.68	-5 10.79	462	1.44	-6	400	1.40	-7	421	1.41	-6	4.88	30.69	-0.10
200051	100047	H	426	3.54	-10 12.39				312	1.10	-7						
200052	100514	C	767	7.07	179 10.24	481	1.83	1831	448	1.51	2014	459	1.62	1949	6.26	41.94	7.87
200052	100515	H	436	3.41	307 12.81				334	1.06	2131						
200079	100479	C	1781	9.72	125 7.09	766	2.46	1602	899	2.15	1857	845	2.25	1788	10.74	53.71	8.05
200086	100486	C	192	1.38	313 14.37	304	1.96	1578	225	0.77	1888	252	1.18	1779	2.92	25.68	6.28
200106	100139	C	327	6.33	93 10.68	367	2.17	1211	264	1.74	1639	293	2.24	1489	3.39	48.76	5.73
200112	100147	C	385	2.58	181 13.19	328	1.36	1490	293	0.99	1800	305	1.11	1561	3.53	24.16	5.82
200119	100156	C	258	6.52	94 10.67	305	3.23	902	229	3.01	871	255	3.08	881	2.95	67.05	3.26
200126	100163	C	208	2.87	144 13.12	223	2.24	867	166	1.01	1123	185	1.44	1033	2.14	31.34	3.82
200136	100173	C	536	6.01	71 10.90	497	2.91	1279	408	1.41	1582	439	1.79	1476	5.12	38.90	5.55
200141	100179	C	221	3.95	89 12.33	259	1.17	1437	233	1.17	1388	241	1.17	1405	2.79	25.43	5.28
200148	100187	C	197	1.17	169 13.87	305	2.94	1422	225	0.69	1878	252	1.47	1718	2.92	32.00	5.47
200156	100197	C	540	6.48	84 10.66	476	3.07	1092	413	2.32	1158	435	2.58	1135	5.04	56.17	4.62
200171	100214	C	552	4.52	77 11.39	445	1.19	1567	429	1.21	1532	434	1.20	1544	5.03	26.12	6.14
200171	100214	H	448	3.97	91 12.17				339	1.05	1521						
200179	100229	C	263	5.88	46 10.96	343	4.45	313	262	2.10	688	290	2.92	557	3.36	63.57	2.15
200171	100215	R	608	5.16	48 11.44	451	1.87	1300	394	1.15	1599	413	1.40	1495	4.78	30.47	5.85
200209	100532	C	3987	11.45	108 6.38	1106	9.35	553	1530	5.44	624	1381	5.40	599	17.58	128.92	2.56
200209	100533	H	713	11.09	81 8.36				482	5.42	592						
200036	100531	C	1191	4.84	143 7.45	1206	5.233	372	1308	4.75	409	1272	4.91	396	14.75	106.90	1.53
200039	100044	C	297	9.18	-3 11.78	363	3.689	-3	303	2.45	-2	323	2.88	-2	4.10	68.75	-0.13
200044	100056	C	399	6.00	0 10.43	443	3.044	-2	391	2.92	-3	383	3.17	-2	4.87	75.67	-0.10
200044	100057	H	192	2.08	-8 12.88				215	1.73	-2						
200094	100071	C	718	8.40	-11 9.21	535	3.622	-6	556	3.28	-7	548	3.39	-6	6.96	80.93	-0.11
200092	100121	C	293	9.90	152 10.62	351	3.777	723	305	3.08	858	321	3.32	810	4.08	79.26	3.09
200097	100127	C	674	10.04	42 7.88	726	6.233	415	544	4.80	562	607	5.30	510	8.29	135.92	2.09
200097	100128	H	316	7.69	90 9.65				311	4.41	633						
200116	100192	C	471	8.00	76 8.99	673	6.011	414	401	3.98	748	496	4.69	631	6.77	120.27	2.77
200116	100193	H	253	5.89	101 11.11				284	3.20	746						
200125	100162	C	611	9.92	98 8.15	740	6.000	361	376	4.77	462	503	5.20	426	6.39	124.15	1.71
200143	100181	C	706	2.36	108 12.60	423	1.599	1321	460	1.13	1564	447	1.28	1479	5.68	30.56	5.16
200143	100182	H	596	0.63	214 13.37				389	0.88	1326						
200195	100194	C	383	6.89	61 10.02	524	4.822	470	314	2.84	640	387	3.53	563	4.92	84.27	2.51
200163	100204	C	716	9.03	70 9.50	544	4.900	372	385	3.06	646	440	3.70	550	5.10	80.55	2.19
200176	100223	C	333	7.31	63 9.47	315	3.889	410	270	3.02	469	285	3.25	449	3.30	70.75	1.76
200207	100243	C	636	7.86	66 8.96	475	2.999	491	544	3.36	646	519	3.23	592	6.60	77.11	2.57
200207	100244	H	278	6.42	70 10.40				264	2.83	517						
200222	100281	C	375	7.87	66 9.72	334	2.000	942	295	2.38	915	308	2.24	925	3.57	48.76	3.78
200256	100321	C	281	2.84	77 12.83	356	2.988	557	305	1.57	723	322	2.06	665	4.09	49.17	2.89
200256	100322	H	290	0.99	101 13.48				222	1.08	746						
200176	100228	R	354	8.40	28 8.90	329	4.133	304	268	3.12	488	289	3.47	424	3.35	75.55	1.64
200084	100095	C	311	5.89	-3 10.47	327	3.093	-6	247	1.51	-4	273	2.04	-4	3.47	48.70	-0.77
200085	100086	C	521	3.87	-4 8.44	319	3.095	-5	265	1.61	-6	282	2.12	-5	3.58	50.61	-0.11
200014	100519	C	292	5.49	97 11.83	285	1.795	1524	237	0.96	1780	253	1.23	1691	3.21	29.36	6.37
200077	100478	C	237	3.24	178 13.01	391	2.006	2010	239	0.65	2787	260	1.14	2502	3.30	27.21	11.31
200078	100474	C	293	7.25	219 10.16	383	4.440	949	289	2.03	1672	321	2.92	1418	4.08	69.77	6.40
200081	100520	C	478	4.48	220 11.79	333	1.591	2159	321	0.91	2674	325	1.11	2493	4.43	28.46	10.52
200091	100119	C	373	8.04	58 9.51	292	2.000	1606	272	1.46	2055	279	1.64	1897	3.54	39.15	7.26
200091	100120	H	224	3.87	210 12.41				213	1.01	2090						
200102	100135	C	314	4.74	93 10.43	342	2.888	1369	286	1.50	1824	305	1.98	1684	3.53	43.10	6.41
200140	100177	C	450	9.57	78 10.46	397	2.687	1285	348	0.99	1971	366	1.58	1731	4.66	37.64	7.47
200140	100178	H	376	4.17	82 11.88				259	0.80	1280						
200199	100291	C	369	7.33	64 9.78	342	2.644	1483	309	1.27	1749	327	1.67	1656	3.79	36.35	6.01
200253	100317	C	268	4.52	99 12.20	396	2.116	1278	241	0.99	1555	273	1.39	1458	3.47	33.18	6.24
200255	100319	C	445	7.47	59 10.01	435	2.226	1214	380	1.20	1573	399	1.57	1447	5.45	40.26	6.71
200256	100320	H	289	3.60	89 12.87				209	0.83	1562						
200247	100323	C	310	5.48	194 11.70	291	2.889	996	186	0.91	1567	219	1.60	1367	2.78	38.19	5.86
200278	100349	C	268	10.27	96 7.41	470	4.228	1159	398	2.66	1803	397	3.22	1577	5.04	76.87	8.14
200278	100350	H	264	7.38	249 9.58				289	2.41	1839						

COLD AND HOT START TEST DATA — HOUSTON, PHASE I — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 1 IDLE HC	CO	NO	CO2	CYCLES 1-4 HC	CO	NO	CYCLES 6-7 HC	CO	NO	COMPOSITE HC	CO	NO	MASS EQUIVALENT HC	CO	NOXC
200178	100470	C	370	7.09	66	9.83	332	2.45	1523	295	1.73	1803	304	1.98	1704	3.86	47.26	7.63
200509	101444	C	480	8.03	49	9.77	1033	5.35	375	522	3.19	760	692	3.94	625	8.78	93.85	2.91
200178	100479	H	386	9.65	80	9.97	292	2.86	870	243	1.63	1217	260	2.06	1095	3.31	49.22	4.94
200074	100098	C	3595	4.94	-12	8.47	4449	1.72	-8	4557	1.32	-4	4519	1.46	-5	57.34	34.85	-0.02
200074	100098	H	3170	1.80	-8	10.52				4128	0.75	-8						
200105	100134	C	230	4.59	94	11.23	240	1.84	1321	219	1.01	1624	240	1.30	1517	3.05	31.03	6.41
200223	100282	C	170	9.37	93	13.91	279	2.17	675	269	1.11	875	272	1.48	805	3.45	35.32	3.60
200293	100355	C	271	2.98	110	11.44	396	2.60	1530	284	1.29	1785	319	1.74	1695	4.05	41.54	6.93
200293	100356	H	191	2.87	106	11.13				220	1.26	1550						
200319	100400	C	267	3.80	100	12.64	358	2.82	742	249	1.41	1078	287	1.90	959	3.64	45.35	4.49
200333	100415	C	272	7.26	49	10.50	340	3.39	696	298	2.26	953	312	2.65	863	3.96	63.26	3.72
200341	100423	C	509	10.05	54	8.94	372	3.56	799	343	2.92	1056	353	3.14	966	4.48	74.96	4.33
200342	100424	C	284	5.28	107	11.58	293	2.17	1494	248	1.60	1744	263	1.79	1656	3.34	42.73	7.42
200343	100425	C	495	9.90	97	9.29	497	2.93	1194	438	1.83	1530	455	2.21	1412	5.78	52.76	6.32
200344	100426	C	385	8.45	53	9.01	406	3.72	754	329	2.58	997	355	2.97	911	4.51	70.90	4.07
200345	100427	C	1625	11.12	86	7.65	693	4.34	645	902	4.63	782	829	4.52	734	10.52	107.91	3.28
200354	100437	C	228	4.73	66	5.10	405	3.75	486	282	3.31	551	325	3.46	528	4.43	88.73	2.47
200368	100454	C	152	6.31	110	10.76	457	4.38	672	386	3.63	754	410	3.89	725	5.60	99.76	3.70
200409	100550	C	752	7.05	79	9.63	597	3.82	607	593	3.66	566	594	3.71	580	7.55	88.57	2.67
200410	100554	C	176	0.33	209	14.80	205	1.77	690	165	1.45	663	178	1.56	658	2.43	40.00	3.38
200410	100556	R	106	0.21	170	11.28	171	2.18	546	139	1.38	632	150	1.66	601	2.04	42.57	3.12
200008	100009	C	353	7.35	-11	9.43	375	3.35	-5	301	2.74	-7	326	3.02	-6	4.14	72.10	-0.11
200045	100058	C	203	2.96	-5	12.45	290	2.95	-9	218	1.19	-10	243	1.80	-9	2.81	39.18	-0.02
200048	100088	C	323	5.29	-4	10.99	315	2.91	-6	245	1.46	-7	269	1.96	-6	3.42	46.79	-0.11
200084	100490	C	310	3.98	238	12.00	330	2.62	1522	282	1.68	2040	299	2.00	1858	3.78	47.75	7.14
200088	100489	C	299	6.45	114	11.22	306	2.50	1732	269	2.10	2108	281	2.24	1976	3.57	53.47	7.59
200115	100151	C	190	1.30	569	13.77	255	2.14	1078	208	0.64	1631	224	1.16	1437	2.59	25.25	5.36
200150	100149	C	246	4.42	44	11.83	263	2.52	841	221	1.35	1221	235	1.75	1088	2.72	38.10	3.44
200150	100200	C	303	3.54	91	12.71	371	2.13	859	309	1.12	1337	330	1.47	1170	4.19	35.09	5.22
200164	100205	C	322	5.67	68	10.94	304	2.14	933	282	1.64	1211	289	1.81	1114	3.67	43.20	4.85
200166	100207	C	232	1.72	110	13.66	322	1.16	1381	281	0.55	1723	295	0.76	1603	3.75	18.14	6.99
200166	100208	H	239	0.82	201	13.83				301	0.45	2195						
200168	100211	C	242	1.64	175	13.64	303	1.02	1606	293	0.87	1751	296	0.92	1700	3.76	21.96	7.44
200179	100225	C	244	2.11	103	13.27	378	2.75	751	293	1.05	1064	322	1.64	955	4.09	39.15	4.11
200183	100236	C	290	4.25	93	11.90	310	2.06	1491	269	1.22	2008	283	1.51	1827	3.59	36.04	7.01
200193	100235	H	206	1.53	139	13.73				233	0.72	1953						
200185	100237	C	252	3.23	96	12.93	315	2.21	1040	240	1.14	1448	266	1.51	1305	3.38	36.04	5.03
200187	100239	C	225	1.86	188	13.64	300	2.16	1038	229	0.89	1545	253	1.33	1368	3.21	31.75	5.23
200196	100248	C	323	5.31	84	11.09	319	2.25	1350	295	1.18	1856	277	1.55	1679	3.52	37.00	6.69
200178	100226	R	261	2.70	113	13.06	377	2.93	775	296	1.25	1145	324	1.83	1015	4.12	43.69	4.31
200019	100023	C	258	2.89	-9	12.50	224	1.95	-6	176	0.87	-8	192	1.24	-7	2.44	29.60	-0.11
200050	100065	C	279	2.24	-8	13.25	282	2.13	-11	231	0.90	-12	244	1.33	-11	3.15	31.75	-0.03
200058	100508	C	310	5.15	142	11.88	281	2.72	1030	244	1.80	1413	254	2.12	1278	3.25	50.50	4.79
200059	100517	C	227	1.18	243	14.52	276	1.60	1331	230	0.76	1863	246	1.05	1676	3.36	26.92	6.79
200080	100487	C	253	5.18	116	12.10	222	2.62	596	187	1.79	905	199	2.08	796	2.53	49.65	3.07
200090	100117	C	164	1.34	-3	14.15	251	2.08	-2	204	0.68	-1	220	1.17	-1	3.00	30.00	-0.13
200090	100118	H	208	0.88	-9	14.13				260	0.73	-8						
200094	100123	C	325	4.62	133	11.71	290	2.14	1031	236	1.24	1393	254	1.55	1266	3.22	37.00	4.83
200103	100136	C	247	4.85	159	11.50	260	2.76	1046	211	1.52	1761	228	1.95	1511	3.11	50.00	6.86
200117	100154	C	152	0.34	352	13.97	271	1.54	1491	213	0.28	2240	233	0.72	1977	3.18	18.45	8.72
200120	100157	C	234	5.08	112	11.83	242	2.19	1283	195	1.38	1706	211	1.66	1557	2.88	42.57	6.79
200144	100193	C	360	5.04	89	11.02	325	2.01	1487	280	1.26	2011	295	1.52	1827	4.02	38.97	6.85
200168	100206	C	285	4.21	68	11.90	278	2.69	660	216	0.96	1063	237	1.56	922	3.01	37.24	4.02
200167	100209	C	346	7.90	50	9.42	341	3.31	579	244	1.83	845	277	2.34	752	3.78	60.00	3.53
200167	100210	H	314	4.04	91	11.95				301	1.45	1572						
200197	100249	C	993	9.64	66	8.17	510	2.50	1308	451	2.09	1729	471	2.23	1582	6.43	97.18	6.76
200197	100250	H	278	3.91	113	12.16				271	1.53	1738						
200247	100309	C	244	2.88	101	13.00	282	2.28	758	232	0.99	1216	249	1.44	1055	3.16	34.37	4.67
200247	100314	R	254	3.16	113	12.95	270	1.90	825	232	1.22	1199	245	1.65	1068	3.11	34.61	4.58
200174	100220	C	358	7.51	61	9.67	351	2.67	1081	341	1.83	1492	344	2.12	1348	4.69	54.36	6.21
200200	100253	C	295	5.06	89	11.20	358	2.90	1097	297	1.63	1478	318	2.03	1344	4.34	52.06	5.68
200227	100286	C	567	11.51	39	6.98	386	3.97	515	430	5.62	308	407	5.04	380	5.55	129.25	1.83
200227	100287	H	398	10.16	44	9.02				328	5.13	490						
200249	100310	C	242	4.23	-741	11.78	499	3.44	-351	272	1.57	-814	351	2.22	-651	4.46	53.00	-6.31
200275	100344	C	775	9.11	65	8.56	535	3.17	499	461	2.02	831	486	2.42	714	6.18	57.77	2.81
200275	100345	H	166	1.18	103	14.01				206	0.69	905						
200312	100393	C	289	5.46	129	10.96	220	2.31	517	188	1.33	816	199	1.67	711	2.71	42.82	3.39
200365	100451	C	-98	4.35	119	9.23	-98	2.19	1318	-98	1.64	1754	-98	1.70	1401	*****	43.59	7.83
200367	100453	C	425	9.14	93	8.99	353	3.23	997	364	2.85	1171	380	2.98	1110	4.91	76.42	5.65
200401	100530	C	234	4.41	113	11.86	297	2.92	1085	239	1.73	1366	259	2.14	1267	3.53	54.48	5.84
200404	100541	C	549	8.84	93	9.40	439	2.86	1193	402	2.17	1585	414	2.41	1447	5.65	61.80	6.93
200404	100542	H	779	9.02	196	10.83				269	1.85	1672						
200408	100548	C	761	9.93	103	8.56	568	3.40	1121	572	2.57	1521	573	2.89	1380	7.78	74.11	7.17
200408	100549	C	218	3.30	132	12.45	319	1.77	1249	268	0.89	1724	295	1.19	1557	4.11	32.23	8.14
200413	100550	C	401	7.47	101	10.03	417	2.52	1183	372	1.90	1579	387	2.11	1440	5.28	54.11	7.07
200417	100543	C	367	7.31	82	10.33	406	2.50	1142	374	1.91	1447	385	2.11	1347	5.25	54.11	6.53
200419	100544	C	260	5.55	94	10.84	254	2.73	393	230	1.55	632	239	1.98	568	3.02	46.79	2.51
200406	100551	H	484	4.97	48	8.54	332	3.15	1130	343	2.63	1541	373	2.81	1397	5.09	72.06	6.94
200027	100033	C	310	7.57	-8	9.96	383	4.54	-3	240	2.37	-7	316	3.12	-5	4.01	74.48	-0.02
200027	100046	C	222	5.17	-3	10.96	360	3.91	-2	224	2.20	-2	271	2.76	-1	3.44	65.89	-0.10

COLD AND HOT START TEST DATA — HOUSTON, PHASE I — PROCESSING DATE- 01/27/72

CAR NO	RUN NO	S	CYCLE 7 HC	CYCLE 7 CO	IDLE NO	IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 5-7 HC	CYCLES 5-7 CO	CYCLES 5-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200041	100529	C	1386	4.02	377	10.70	787	2.19	1490	1004	1.28	1908	928	1.59	1761	11.80	37.95	7.49
200043	100519	C	139	2.79	149	12.95	224	1.78	912	149	0.81	1153	175	1.15	1068	2.39	29.48	4.32
200052	100443	C	756	11.36	179	8.36	827	4.82	892	370	3.24	1399	529	3.79	1221	6.72	90.48	5.36
200052	100484	H	347	10.11	75	8.96				227	2.92	927						
200093	100122	C	278	7.15	188	10.18	317	2.85	1148	220	1.91	1519	251	2.23	1389	3.21	53.23	5.32
200144	100185	C	225	3.31	138	12.75	280	2.06	1584	239	1.32	1814	253	1.57	1734	2.93	34.18	5.52
200214	100272	C	188	1.29	70	13.41	354	2.14	976	286	0.76	1317	309	1.24	1197	3.92	29.60	5.30
200225	100284	C	298	5.33	61	11.36	210	1.83	934	205	1.54	541	206	1.64	538	2.61	34.15	2.41
200232	100293	C	289	7.99	66	9.93	415	4.32	447	253	2.54	967	309	3.16	855	3.58	68.79	3.47
200244	100306	C	118	1.56	89	13.89	291	2.33	814	214	0.87	958	240	1.38	908	2.78	30.04	3.66
200245	100307	C	289	7.85	44	9.69	368	4.95	703	234	2.59	921	273	2.92	844	3.66	69.56	3.74
200251	100313	C	184	4.91	77	12.13	171	2.14	466	116	1.40	468	135	1.65	468	1.71	39.39	2.00
200272	100341	C	235	5.46	131	11.78	317	4.18	730	211	1.89	1191	245	2.69	1029	3.15	64.22	4.02
200273	100342	C	187	5.46	129	11.99	280	3.09	764	186	1.79	1052	218	2.24	951	2.97	57.44	3.99
200277	100348	R	245	5.84	130	11.21	348	3.83	793	220	1.96	1243	264	2.61	1085	3.35	67.31	4.22
200283	100109	C	519	8.63	-12	8.77	389	5.84	-6	354	4.57	-6	366	5.01	-5	4.99	128.49	-0.11
200283	100110	H	637	9.48	-9	8.52				413	4.83	-2						
200145	100184	C	248	4.81	66	11.13	232	1.58	1391	183	1.02	1716	200	1.21	1602	2.73	31.03	6.01
200199	100252	C	216	5.36	66	10.46	267	4.26	557	204	2.62	782	226	3.19	703	3.08	81.81	2.99
200220	100278	C	189	1.97	89	13.25	291	2.13	899	206	1.65	1077	214	1.81	1013	2.92	46.41	4.87
200229	100288	C	307	2.26	130	12.76	252	2.90	768	232	1.13	988	239	1.60	911	3.26	41.03	4.36
200237	100298	C	486	4.45	70	11.53	315	2.23	758	334	1.63	890	327	1.83	844	4.46	46.93	3.95
200258	100324	C	176	3.57	87	12.03	191	1.40	1380	153	0.80	1557	166	1.01	1495	2.26	25.90	6.88
200274	100343	C	224	4.90	162	11.22	253	2.47	1065	191	1.43	1491	212	1.79	1341	2.89	45.90	5.63
200277	100347	C	304	7.19	106	9.66	297	3.19	1180	273	1.64	1853	281	2.18	1617	3.83	55.90	6.75
200305	100384	C	245	4.56	114	11.93	254	4.01	599	192	1.36	1163	213	2.28	965	2.90	58.47	4.37
200389	100495	C	766	8.70	124	8.88	445	5.66	410	401	4.41	748	486	4.84	629	6.63	124.12	2.50
200389	100496	H	541	9.64	82	9.01				329	3.37	515						
200393	100505	C	177	1.85	267	13.32	200	1.48	1709	159	0.62	2154	173	0.92	1998	2.36	23.59	7.99
200402	100535	C	227	5.91	124	10.85	248	2.35	1073	207	1.76	1351	221	1.96	1253	3.01	50.26	5.84
200405	100545	C	330	2.35	137	13.13	268	1.51	845	255	1.28	1006	259	1.36	949	3.53	34.87	4.92
200420	100567	C	225	8.27	88	9.53	306	2.17	835	269	2.24	915	281	2.21	886	3.83	56.53	4.38
200258	100329	R	209	4.02	123	11.72	206	1.13	1385	177	0.87	1589	187	0.96	1517	2.55	24.61	7.12
200053	100070	C	565	3.88	-1	11.09	345	4.22	-4	376	1.90	-4	379	2.71	-3	5.17	69.49	-0.10
200065	100085	C	256	5.19	0	11.24	320	5.02	0	222	2.16	-2	256	3.16	-1	3.49	81.03	-0.10
200132	100169	C	298	8.71	64	9.16	346	4.41	668	268	2.99	808	295	3.49	759	4.03	89.53	3.44
200303	100382	C	278	7.70	84	10.14	293	4.26	660	239	2.61	1062	257	3.18	921	3.26	75.91	3.91
200318	100399	C	186	5.93	105	11.45	259	3.33	735	195	1.81	1160	217	2.34	1011	2.75	55.86	4.69
200331	100413	C	272	5.93	120	11.38	287	3.77	963	214	2.36	1254	239	2.85	1152	3.26	73.09	5.34
200349	100432	C	362	9.08	97	9.25	368	4.31	777	309	2.67	1373	329	3.24	1164	4.49	83.09	5.25
200352	100435	C	195	2.64	209	13.18	218	1.86	1224	196	1.90	1269	203	1.88	1253	2.58	44.88	5.47
200360	100445	C	221	5.02	152	12.15	321	4.20	737	233	2.61	1014	263	3.16	917	3.34	75.44	4.13
200363	100449	C	282	9.29	97	9.36	282	3.90	760	291	2.70	1008	281	3.12	921	3.31	74.48	4.19
200371	100459	C	399	8.47	123	9.74	282	5.92	569	271	3.69	1015	274	4.33	857	3.48	103.37	3.85
200371	100460	H	248	8.00	111	10.19				215	3.62	667						
200377	100469	C	367	4.92	102	12.01	463	2.28	1196	303	1.89	1433	354	2.02	1350	4.89	51.80	6.47
200379	100471	C	184	1.38	143	13.99	253	2.24	1055	205	1.31	1206	221	1.63	1153	2.81	38.91	5.15
200387	100492	C	219	6.19	165	11.10	415	7.37	120	240	5.44	196	301	6.11	169	3.82	145.87	0.65
200390	100500	C	232	4.87	114	11.98	301	3.69	769	248	1.88	1127	266	2.49	1001	3.38	59.44	3.82
200303	100390	R	219	5.50	102	11.48	146	2.22	483	120	1.41	651	129	1.69	592	1.64	40.34	2.43
200390	100509	R	224	5.01	127	11.75	291	3.66	939	224	1.68	1405	247	2.29	1241	3.14	54.67	4.70
200062	100082	C	200	5.21	0	11.28	263	2.79	-2	198	1.21	-1	219	1.76	-1	2.99	45.13	-0.12
200064	100084	C	202	1.49	-4	12.48	238	1.96	-7	193	0.50	-6	209	1.01	-6	2.84	25.90	-0.01
200129	100166	C	179	5.63	103	11.18	276	4.28	957	159	1.45	1684	199	2.44	1429	2.71	67.57	6.23
200133	100170	C	260	6.70	80	10.29	363	3.47	775	266	2.33	1166	300	2.73	1029	4.10	70.60	4.56
200135	100172	C	273	7.23	62	9.60	285	2.71	1021	249	1.91	1263	261	2.19	1178	3.57	56.02	5.21
200184	100236	C	208	2.99	96	11.76	304	3.32	871	238	1.12	1209	261	1.89	1091	3.56	48.46	4.69
200186	100238	C	183	2.98	93	12.83	263	2.88	969	205	1.20	1362	225	1.78	1225	3.07	45.64	5.03
200192	100244	C	245	4.81	55	7.92	361	3.01	981	282	2.70	1080	309	2.80	1038	4.21	71.62	4.44
200212	100269	C	184	1.91	-98	13.39	296	2.30	-98	239	0.59	-98	258	1.25	-98	3.52	32.05	*****
200219	100277	C	369	4.87	66	10.30	341	2.08	1104	281	1.47	1408	301	1.68	1302	4.11	43.08	6.19
200233	100294	C	210	6.18	89	10.00	282	2.81	751	239	2.71	770	254	2.74	763	3.46	70.27	3.57
200241	100303	C	229	6.47	66	10.78	234	2.94	978	159	1.34	804	185	1.90	725	2.52	48.72	3.44
200242	100304	C	225	7.15	77	10.39	262	2.86	1025	210	1.66	1459	228	2.08	1307	3.11	53.33	6.21
200252	100315	C	348	9.00	77	9.09	300	3.14	827	288	1.83	1150	292	2.28	1037	3.98	58.47	4.78
200252	100316	H	245	7.03	66	10.14				225	1.74	1157						
200267	100335	C	196	4.16	128	12.27	225	0.93	1313	208	1.13	1442	213	1.05	1396	2.90	26.92	6.51
200288	100361	C	193	5.33	134	11.55	276	3.37	1261	197	1.78	1680	224	2.33	1533	3.05	59.75	5.69
200288	100346	R	209	5.08	158	11.75	242	3.07	1337	221	2.08	1602	235	2.42	1509	3.20	62.06	5.63
200142	100140	C	86	1.36	46	11.12	200	1.97	1034	144	0.65	1232	163	1.11	1163	2.35	30.06	4.60
200134	100135	C	86	1.05	70	11.31	198	1.66	1109	149	0.56	1391	166	0.94	1293	2.39	29.45	6.54
200173	100219	C	102	2.42	55	11.44	215	1.21	1356	171	1.00	1390	184	1.07	1378	2.68	28.97	6.70
200265	100333	C	94	3.76	137	11.71	274	2.52	941	153	1.42	1217	177	1.80	1120	2.55	48.75	5.55
200269	100363	C	104	1.07	629	11.25	215	1.49	1569	154	0.69	1958	175	1.10	1821	2.42	29.79	7.01
200301	100380	C	113	2.57	84	11.04	205	1.84	1095	144	1.07	1493	178	1.33	1353	2.56	36.02	6.32
200313	100394	C	44	2.04	242	11.70	161	1.09	1331	125	0.79	1599	137	0.89	1505	1.97	24.10	7.53
200325	100406	C	88	1.78	159	11.00	214	2.23	1245	153	1.13	1486	174	1.51	1408	2.50	40.49	6.99
200330	100412	C	93	1.61	135	11.93	218	2.12	981	150	1.09	1418	173	1.45	1245	2.49	39.26	6.20
200340	100422	C	104	1.22	118	11.35	235	2.18	877	96	1.05	609	144	1.44	702	2.07	38.99	3.66
200345	100439	C	103	1.72	141	10.81	243	2.66	843	155	1.68	1133	185	2.02	1031	2.66	54.71	5.21

COLD AND HOT START TEST DATA — HOUSTON, PHASE 1 — PROCESSING DATE- 03/27/72

CAR ID	RUN NO	S	-----CYCLE 7 IDLE----- HC	CO	NO	CO2	---CYCLES 1-4--- HC	CO	NO	---CYCLES 6-7--- HC	CO	NO	---COMPOSITE---- HC	CO	NO	--MASS EQUIVALENT-- HC	CO	NOXC
200361	100446	C	83	1.15	266	11.94	198	1.69	1307	143	0.41	1864	167	0.85	1669	2.33	23.02	8.68
200364	100452	C	80	1.31	191	11.42	185	1.80	1293	145	0.66	1616	158	1.05	1499	2.27	28.43	8.06
200381	100474	C	78	2.09	111	11.96	172	.75	1114	124	1.00	1354	140	1.26	1270	2.01	34.12	6.44
200384	100482	C	102	1.83	101	11.29	212	1.35	1117	162	0.62	1392	179	0.87	1295	2.58	23.56	6.66
200173	100227	R	101	2.51	46	11.51	225	1.28	1174	180	1.06	1210	195	1.13	1198	2.81	30.60	5.76
200006	100007	C	1846	9.67	-9	5.87	1305	6.28	-8	1091	6.23	-8	1165	6.24	-8	7.51	75.61	-0.01
200014	100020	C	131	3.14	-5	12.48	419	1.99	-3	334	1.30	-4	369	1.54	-3	2.34	18.65	-0.10
200017	100021	C	226	2.12	-6	10.91	443	2.37	-4	278	1.44	-6	335	1.76	-6	2.40	23.72	-0.10
200031	100523	C	2329	0.79	291	9.76	1708	2.86	761	1644	2.36	722	1666	2.53	735	10.75	30.65	1.64
200046	100555	C	330	3.74	267	10.56	436	2.06	1261	373	1.98	1252	395	2.00	1255	2.54	24.23	3.05
200047	100524	C	3358	10.43	105	5.58	1519	4.66	378	1555	6.61	329	1542	6.62	346	9.95	80.21	0.77
200048	100043	C	669	8.41	-6	5.65	787	4.92	-8	768	5.17	-8	774	5.08	-7	4.99	61.55	-0.13
200049	100534	C	196	3.88	488	12.28	402	1.69	1706	308	1.22	1716	340	1.38	1712	2.19	16.72	3.72
200066	100522	C	207	3.23	563	10.88	497	1.90	2326	462	1.60	2107	474	1.70	2193	3.05	20.59	4.35
200067	100466	C	180	2.24	515	11.29	407	1.71	1489	343	1.59	1552	365	1.63	1529	2.35	19.74	3.46
200089	100497	C	566	4.48	603	11.11	687	1.58	1734	640	1.50	1826	656	1.52	1793	4.23	18.41	3.36
200137	100174	C	179	4.76	51	9.37	415	1.78	1440	351	1.57	1386	373	1.64	1405	2.37	19.85	3.06
200161	100202	C	248	5.41	66	10.44	363	3.05	1179	294	2.57	1123	318	2.73	1142	2.05	33.08	2.59
200177	100224	C	194	3.48	66	8.53	273	2.19	1355	246	1.98	1199	255	2.05	1254	1.83	27.62	3.05
200188	100240	C	216	4.32	-98	8.77	452	2.33	-98	418	1.73	-98	429	1.93	-98	2.76	23.38	*****
200421	100512	C	139	1.90	105	11.24	423	1.45	2077	347	1.13	1934	373	1.24	1984	2.40	15.02	3.80
200503	101184	C	227	3.20	68	9.67	559	2.57	1004	404	1.91	1038	458	2.14	1026	3.31	29.06	2.20
200177	100230	R	161	3.28	44	8.54	319	2.65	1209	245	1.97	1160	270	2.20	1177	1.93	29.65	2.82
200034	100042	C	355	5.44	-9	10.66	313	1.85	-8	298	2.47	-8	303	2.25	-7	2.40	33.52	-0.01
200034	100043	H	384	4.57	-6	10.88				285	2.41	-5						
200118	100155	C	303	2.21	341	12.61	313	1.07	1396	229	0.93	1288	258	0.97	1325	2.04	14.44	3.39
200151	100190	C	406	0.94	66	12.74	283	0.41	723	200	0.38	864	229	0.39	815	1.81	5.80	1.76
200152	100191	C	501	5.25	70	8.70	1201	5.29	375	508	2.28	871	750	3.33	698	5.95	49.61	1.91
200152	100192	H	343	2.77	66	10.72				277	1.76	1004						
200229	100289	C	274	2.59	66	12.57	242	1.11	986	190	0.94	954	208	0.99	968	1.65	14.74	2.70
200230	100290	C	619	3.65	77	12.35	436	3.51	325	411	4.22	231	419	3.97	264	3.32	59.14	0.74
200240	100302	C	915	4.67	-98	9.06	611	1.56	-98	675	1.19	-98	652	1.31	-98	5.17	19.51	*****
200250	100312	C	292	0.94	66	14.10	264	0.96	895	209	0.44	907	228	0.62	903	1.80	9.23	2.49
200261	100327	C	323	1.43	344	13.01	211	0.81	1186	210	0.38	1392	210	0.53	1319	1.66	7.89	3.70
200296	100372	C	376	2.01	284	13.76	320	1.60	801	224	1.54	830	257	1.56	819	2.03	23.24	1.90
200298	100373	R	389	2.35	147	12.60	329	1.94	710	215	2.08	618	254	1.99	650	2.01	29.64	1.64
200299	100378	C	277	3.34	363	11.65	241	1.82	1342	261	1.83	1161	267	1.82	1224	2.11	27.11	3.15
200300	100379	C	351	0.29	272	12.24	305	1.04	1032	321	0.58	1195	315	0.74	1137	2.49	11.02	2.33
200304	100383	C	945	7.71	98	8.76	328	5.64	178	326	5.82	153	326	5.75	161	2.58	85.67	0.47
200376	100469	C	301	0.45	287	13.29	258	0.50	1242	175	0.40	1287	204	0.43	1271	1.61	6.40	3.53
200397	100511	C	884	0.28	251	11.86	929	0.90	1095	757	0.67	999	817	0.75	1032	6.68	11.17	2.42
200501	101062	C	311	7.76	60	9.64	544	3.99	693	377	3.61	670	435	3.74	678	3.45	55.72	1.58

TABLE B-5

Houston

Phase II

COLD AND HOT START TEST DATA   HOUSTON, PHASE II   PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200262	200725	C	330	8.59	77	9.63	431	3.54	1045	358	1.98	1610	383	2.52	1412	3.94	48.73	4.81
200271	201029	C	117	2.66	98	11.72	270	1.93	1219	210	1.22	1744	231	1.46	1560	2.13	25.37	4.22
200297	200780	C	206	5.87	99	10.56	403	3.92	701	347	2.46	1096	364	2.83	957	3.38	49.19	2.51
200314	200761	C	169	3.76	95	11.37	280	1.97	1610	288	2.95	1500	285	1.95	1538	2.63	34.41	4.19
200314	200762	H	162	3.05	90	11.60				292	1.76	1654						
200332	200778	C	233	4.55	134	12.25	358	1.72	1140	226	1.15	1797	272	1.34	1567	2.80	25.91	4.67
200337	200831	C	771	6.18	119	11.46	2063	4.55	574	407	2.52	959	986	3.23	824	9.12	56.14	2.16
200347	200865	C	138	0.90	123	13.96	306	1.34	1255	270	0.92	1456	282	1.06	1385	2.61	18.42	4.42
200347	200866	H	116	0.40	117	14.07				261	1.59	1333						
200351	200799	C	222	6.94	90	9.94	307	2.74	1657	209	1.92	2270	263	2.20	2055	2.81	47.[illegible]	7.32
200356	200943	C	97	0.43	178	13.20	267	1.03	1409	216	0.43	1458	233	0.63	1765	2.15	10.94	4.85
200358	200804	C	261	4.36	104	11.91	336	1.76	1601	261	2.44	1274	287	2.20	1388	3.32	47.89	4.66
200358	200805	H	238	3.70	138	12.45				261	2.20	1212						
200373	200921	C	318	2.68	82	7.06	364	2.02	1012	270	1.46	1209	302	1.65	1140	3.50	35.92	3.80
200262	200726	R	319	8.59	82	9.24	421	3.35	1028	338	1.98	1727	367	2.45	1482	3.78	47.37	5.04
200096	201193	C	371	4.61	107	11.55	402	2.67	888	256	0.96	1755	307	1.55	1451	3.15	29.92	4.43
200122	200613	C	255	1.71	160	13.61	562	2.56	954	306	1.44	1425	395	1.83	1260	4.51	39.26	5.22
200123	200705	C	407	11.43	48	6.85	585	5.38	699	393	5.05	926	460	5.16	846	4.25	89.69	2.26
200191	200669	C	337	6.82	93	9.23	377	3.47	1093	238	1.52	2364	286	2.20	1919	2.94	42.54	5.70
200215	200684	C	371	6.19	62	10.03	1420	6.21	96	466	6.73	144	799	6.54	127	7.39	113.67	0.39
200234	200692	C	296	5.33	129	10.54	349	3.84	1638	254	1.58	2786	287	2.37	2384	2.95	45.83	7.19
200238	200851	C	157	2.29	101	13.01	337	2.37	1216	229	1.68	1509	266	1.92	1406	2.46	33.37	4.22
200259	200786	C	309	2.31	306	13.48	368	1.94	1669	251	0.61	2708	291	1.07	2344	2.99	20.68	6.98
200284	200891	C	436	9.62	75	8.75	494	2.84	1581	295	1.99	2208	364	2.28	1988	3.74	44.03	6.06
200284	200892	H	443	9.61	94	8.80				303	1.92	2231						
200310	200897	C	273	5.92	125	8.71	510	3.88	2162	237	1.99	3495	332	2.65	3025	3.84	57.59	10.26
200310	200898	H	273	5.47	157	8.43				230	1.84	3558						
200317	201015	C	158	1.52	236	12.19	264	2.59	1266	141	0.64	1917	184	1.32	1689	1.89	25.48	5.71
200321	200911	C	272	5.51	119	9.34	365	3.16	1952	239	1.86	2671	283	2.31	2419	2.91	44.60	7.18
200056	201199	R	366	4.77	105	12.09	422	3.02	934	239	0.97	1638	303	1.68	1391	3.11	32.43	4.33
200013	200904	C	110	0.10	118	12.20	261	2.02	1304	203	0.20	1711	223	0.83	1568	2.58	18.03	5.32
200015	200895	C	222	2.47	125	13.22	466	3.81	781	345	2.52	1043	387	2.97	951	4.47	64.54	3.26
200018	200578	C	315	3.85	125	11.74	478	2.55	1257	406	3.17	936	431	2.95	1048	5.47	70.28	3.79
200018	200579	H	324	1.99	236	13.30				337	1.48	1565						
200025	200797	C	310	7.23	91	9.76	358	2.95	1458	287	1.92	2013	312	2.28	1818	3.61	49.64	6.08
200038	200775	C	173	1.97	135	12.04	305	1.61	1381	231	0.72	2232	256	1.03	1934	3.49	26.41	8.60
200073	200956	C	408	7.54	66	9.87	434	5.40	446	322	3.36	1003	361	4.07	808	4.59	97.16	3.40
200095	200534	C	293	9.66	44	9.05	363	3.18	412	275	2.37	873	305	2.65	711	3.87	63.13	2.96
200099	200639	C	508	11.05	36	7.30	267	2.88	595	239	2.59	800	249	2.69	728	3.15	64.22	2.64
200108	200616	C	692	2.56	101	13.39	546	1.19	1315	727	0.75	1478	663	0.90	1420	8.43	21.48	6.90
200110	200731	C	146	1.28	152	13.39	286	1.92	1347	163	0.55	1996	206	1.02	1768	2.61	24.35	7.30
200111	200912	C	469	9.70	50	7.57	609	3.78	1103	355	1.95	2326	443	2.59	1897	5.62	61.69	7.05
200169	200750	C	148	2.35	127	12.81	729	1.40	1574	201	1.39	1567	210	1.39	1569	2.43	30.26	5.84
200169	200752	R	147	2.08	131	12.69	350	3.44	921	217	1.18	1726	263	1.97	1444	3.04	42.88	4.83
200207	200907	C	257	0.10	1681	12.94	705	2.92	1360	333	0.20	2873	463	1.15	2343	5.87	27.39	8.58
200032	200577	C	208	3.78	64	12.17	340	1.68	1614	249	1.55	2097	280	1.59	1927	3.82	40.75	7.61
200042	200580	C	157	1.79	30	12.74	289	1.12	1396	204	0.74	1684	233	0.87	1583	3.18	22.30	6.42
200128	200741	C	208	4.98	93	10.22	329	2.19	2203	224	1.66	2891	265	1.84	2650	3.30	43.92	9.86
200147	200636	C	265	3.74	39	7.70	445	2.85	601	318	2.78	821	362	2.80	743	4.60	66.84	2.68
200155	200713	C	186	3.19	89	12.21	329	1.92	1787	235	1.45	1803	267	1.61	1797	3.64	41.28	7.08
200162	200650	C	177	3.04	79	12.13	307	2.66	1356	209	1.42	2159	243	1.85	1877	3.08	44.16	6.95
200194	200677	C	152	2.27	53	12.22	304	2.38	972	199	1.06	1224	235	1.52	1135	2.98	36.28	4.45
200201	200686	C	138	3.45	27	7.60	413	3.51	1117	271	2.56	1315	320	2.89	1245	4.37	74.11	4.99
200204	200678	C	129	1.33	76	13.15	261	1.07	1011	161	0.45	1606	195	0.66	1397	2.66	16.92	5.52
200215	200791	C	241	4.69	86	10.96	320	2.54	1117	252	1.86	1505	275	2.09	1369	3.18	45.49	4.59
200217	200723	C	105	0.24	99	13.44	226	0.98	1017	173	0.47	1065	191	0.64	1049	2.60	16.41	4.76
200217	200729	F	98	0.12	109	13.31	247	1.54	954	172	0.41	1226	198	0.80	1130	2.70	20.51	5.04
200113	200618	C	262	2.62	91	13.10	411	2.95	788	289	1.72	1170	331	2.15	1036	4.97	60.61	5.19
200124	200755	C	380	6.81	66	9.18	801	5.31	651	362	3.44	1073	515	4.09	925	7.73	115.31	4.21
200127	200661	C	392	7.94	-8	9.10	238	2.90	391	245	2.04	594	242	2.34	522	3.30	60.00	2.11
200149	200652	C	205	4.56	91	11.72	382	8.02	55	374	8.31	58	376	8.20	56	5.13	210.21	0.24
200180	200654	C	360	9.36	46	7.75	392	4.42	1068	246	2.31	1738	297	3.04	1503	4.05	77.96	5.97
200224	200689	C	188	0.95	74	13.16	257	1.28	820	176	0.43	1220	204	0.72	1080	2.59	17.18	3.97
200246	200736	C	301	6.70	74	9.89	261	2.03	1532	246	2.29	1680	251	2.19	1628	3.42	56.16	7.19
200266	200708	C	1732	9.99	51	5.91	621	5.77	371	659	5.93	358	645	5.87	362	8.81	150.54	1.41
200266	200709	H	781	10.34	44	6.53				456	5.27	495						
200285	200749	C	306	2.87	75	11.82	337	3.80	473	249	1.91	862	279	2.50	725	3.54	59.68	2.96
200307	200920	C	453	4.42	46	10.19	400	3.21	689	297	1.93	1095	326	2.37	952	4.13	56.45	3.93
200315	200760	C	141	2.21	117	13.05	292	3.08	824	165	0.98	1350	209	1.71	1165	2.85	43.85	4.57
200350	200825	C	182	2.76	109	11.76	358	3.83	807	216	1.78	1506	265	2.49	1261	3.61	63.85	4.90
200353	200834	R	180	3.05	90	11.57	346	3.84	689	222	2.08	1239	265	2.68	1046	3.61	68.73	4.07
200024	200596	C	77	0.11	195	12.59	335	1.62	1212	235	0.53	1700	269	0.91	1929	2.77	17.59	4.73
200075	200612	C	127	0.11	212	12.96	329	0.68	1495	250	0.36	1774	277	0.67	1676	2.85	9.09	5.94
200193	200671	C	111	0.49	291	12.94	271	2.20	1627	202	0.35	2698	226	0.99	2323	2.32	19.14	6.88
200235	200430	C	136	0.40	402	14.02	292	1.23	2025	233	0.46	2627	253	0.72	2416	2.60	13.91	7.37
200293	200766	C	446	2.23	242	12.78	394	1.59	1981	572	0.75	1734	509	1.01	1610	5.90	21.99	6.09
200346	200710	C	590	5.72	116	10.88	374	2.33	1632	365	1.08	2206	368	1.51	2006	3.78	29.15	6.05
200357	200772	C	220	5.06	99	11.10	474	2.28	1252	275	1.71	1754	304	1.58	1578	3.22	30.91	5.36
200357	200773	H	173	2.98	120	13.25				230	0.93	1709						
200379	200808	C	145	0.95	190	13.61	394	2.54	1611	212	0.62	2333	276	1.29	2080	2.84	24.94	6.22

COLD AND HOT START TEST DATA — HOUSTON PHASE II — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	-----CYCLE 7 IDLE----- HC	CO	NO	CO2	---CYCLES 1-4--- HC	CO	NO	---CYCLES 6-7--- HC	CO	NO	---COMPOSITE---- HC	CO	NO	--MASS EQUIVALENT-- HC	CO	NOXC
200382	200864	C	248	4.23	136	11.72	239	1.40	2850	212	1.03	3041	221	1.15	3000	2.95	24.98	12.03
200384	200867	C	273	7.27	94	10.00	996	2.60	629	494	2.41	630	474	2.40	629	4.40	41.71	1.73
200403	200815	C	165	2.25	159	12.92	278	1.77	2109	176	0.94	2332	211	1.23	2253	2.44	26.77	7.56
200411	200855	C	260	3.38	140	12.71	291	1.41	2493	210	0.73	2940	224	0.98	2783	2.59	20.86	9.62
200412	200870	C	152	1.61	203	13.50	244	1.47	1359	198	0.94	1702	217	1.26	1581	2.23	24.32	4.78
200293	200770	R	375	1.46	135	12.41	401	0.97	1626	476	1.00	1747	449	0.98	1737	5.20	21.33	5.87
200263	200751	C	137	1.22	99	7.31	611	6.15	578	406	3.83	900	477	4.64	787	4.91	89.73	2.34
200276	200847	C	159	3.16	26	12.23	351	4.80	615	276	4.63	537	309	4.68	564	2.82	81.34	1.80
200290	200743	C	243	4.35	57	6.87	425	4.46	660	413	4.44	853	552	4.44	785	5.11	77.17	2.09
200322	200824	C	280	4.62	90	11.76	442	1.87	1010	317	1.62	894	360	1.70	934	3.33	29.54	2.91
200324	200759	C	122	3.22	113	12.41	328	2.43	1396	232	1.48	1771	246	1.81	1639	2.27	31.45	4.38
200327	200754	C	109	3.04	99	12.07	357	4.24	660	250	3.53	816	293	3.77	761	2.98	72.80	2.26
200334	200806	C	75	0.37	125	13.56	353	2.59	986	214	1.70	1213	262	2.00	1133	2.42	34.71	3.07
200339	200809	C	144	1.68	147	10.06	291	0.78	2130	220	0.51	2644	230	0.60	2464	2.36	11.60	7.36
200375	200836	C	146	3.27	103	12.50	401	4.05	635	255	3.49	736	306	3.68	703	2.83	63.96	1.84
200384	200876	C	142	2.47	82	7.79	352	1.39	1734	268	0.94	2290	293	1.03	2099	2.98	19.88	6.74
200399	200877	R	153	2.63	98	9.20	318	1.34	1314	252	0.79	2044	275	0.98	1788	2.82	18.91	5.33
200001	200575	C	1159	9.93	-2	8.40	774	1.53	2278	639	1.35	2356	686	1.41	2328	8.72	33.66	9.11
200020	200921	C	429	8.97	54	9.43	413	2.08	1611	329	1.73	2286	358	1.85	2049	4.14	40.20	7.40
200024	200583	C	448	4.89	77	11.64	926	1.56	2141	430	1.16	2409	483	1.30	2315	5.36	28.31	7.96
200029	200645	C	146	0.82	75	12.21	440	1.39	1263	318	0.79	1741	360	0.99	1573	4.41	22.80	6.14
200104	200617	C	358	7.14	55	10.41	417	2.43	1316	339	1.97	1579	366	2.13	1486	4.24	46.37	6.58
200107	200623	C	1575	7.30	47	6.43	1200	3.31	1059	1104	2.63	1535	1137	2.86	1368	15.53	73.34	5.37
200121	200624	C	332	6.83	74	10.70	337	1.65	1695	301	1.36	1871	313	1.46	1839	3.98	34.85	8.09
200134	200664	C	311	3.45	114	11.85	391	2.09	2068	285	0.80	2845	318	1.25	2573	4.04	29.83	9.43
200205	200676	C	712	6.84	42	9.65	642	2.55	996	680	2.15	1292	666	2.28	1183	7.72	49.64	4.02
200211	200699	C	258	6.09	84	10.98	390	1.89	1071	271	1.02	1652	312	1.32	1444	3.61	28.73	4.93
200226	200831	C	206	0.59	159	14.23	336	1.94	1671	313	0.62	2195	342	1.08	2011	3.96	23.50	6.90
200228	200837	R	241	0.57	194	13.84	480	1.92	1571	354	0.63	2135	394	1.04	1937	4.60	22.59	7.38
200057	200902	C	277	4.53	123	10.92	386	2.34	1304	227	0.96	1741	282	1.44	1588	3.26	31.29	5.38
200071	200809	C	302	2.93	69	13.10	346	1.30	1405	274	0.60	1848	299	0.84	1692	4.08	21.54	8.19
200213	200827	C	441	7.04	88	10.16	465	2.75	1442	362	1.57	2229	398	1.98	1953	5.43	50.77	7.73
200231	200690	C	494	10.37	50	7.67	799	3.03	355	585	2.35	735	659	2.58	601	6.86	50.48	1.80
200236	200704	C	557	8.79	53	8.82	602	2.91	685	377	1.56	1111	455	2.03	961	5.78	48.46	3.54
200249	200691	C	426	7.49	72	9.37	730	8.12	132	343	1.82	2018	478	4.02	1357	6.07	95.97	4.97
200260	200712	C	383	4.51	77	11.86	384	1.28	1572	349	0.82	1948	361	0.98	1816	4.18	21.33	6.08
200297	200840	C	311	5.01	100	10.97	329	1.49	1712	280	1.42	2172	297	1.44	2011	4.04	38.82	8.96
200291	200745	C	188	1.44	201	12.77	236	1.73	1494	176	0.45	2118	197	0.89	1896	2.69	22.81	7.38
200308	200774	C	291	4.66	101	11.59	299	1.82	1134	227	0.94	1598	252	1.24	1434	2.92	26.99	5.40
200311	200790	C	259	3.63	105	12.08	228	1.36	521	156	0.77	913	181	0.97	515	2.09	21.11	1.76
200311	200793	R	96	0.11	300	13.16	265	1.30	392	131	0.61	563	177	0.85	503	2.05	18.50	1.68
200061	200668	C	340	5.02	86	10.04	345	3.29	1169	263	1.31	2078	305	2.00	1759	3.87	47.75	6.44
200098	200622	C	244	2.94	85	13.42	284	0.96	1533	226	1.06	1234	239	1.02	1338	3.03	24.35	6.85
200139	200667	C	435	4.86	67	10.86	399	1.02	951	242	0.87	1523	296	0.92	1322	4.04	23.58	5.25
200153	200629	C	269	3.60	115	12.21	303	2.23	1356	227	1.01	2147	253	1.43	1870	3.45	38.66	7.03
200170	200648	C	118	2.22	134	12.13	128	1.15	620	92	0.92	832	104	1.00	757	1.42	25.64	2.99
200172	201185	C	159	0.09	199	13.31	275	1.59	1356	210	0.93	1873	232	0.90	1692	3.16	23.01	6.96
200175	200637	C	394	7.43	68	9.35	281	2.55	873	240	2.08	1030	254	2.24	975	3.46	57.44	3.78
200190	200651	C	195	2.65	111	13.30	243	1.03	1812	185	0.71	2092	205	0.82	1994	2.80	21.03	7.93
200191	200665	C	315	5.92	86	10.29	340	1.60	1658	266	1.77	1926	291	1.71	1832	3.70	40.82	6.71
200195	200691	C	340	7.19	54	9.82	342	2.27	757	293	1.88	1348	303	2.01	1141	3.51	43.76	4.17
200195	200692	H	306	6.38	54	10.03				277	1.45	1099						
200206	200679	C	278	3.78	91	11.47	1476	2.34	116	194	0.98	884	642	1.44	615	8.77	36.92	2.45
200210	200787	C	231	4.69	84	11.44	352	4.35	531	263	3.54	681	294	3.82	626	4.01	97.97	2.48
200172	201194	R	140	0.07	243	13.60	261	1.52	1755	190	0.42	2186	214	0.80	2022	2.91	20.45	8.48
200180	200658	C	431	11.50	37	7.49	273	3.66	619	242	3.97	683	252	3.86	660	3.44	98.99	2.64
200049	200849	C	207	3.27	113	13.22	235	2.12	760	169	0.87	1197	192	1.30	1044	2.76	35.10	4.53
200070	201186	C	181	3.66	121	12.85	274	2.82	811	145	1.12	1196	190	1.71	1081	2.58	43.73	4.34
200096	200620	C	407	5.68	74	10.92	373	2.80	930	305	1.88	725	328	2.20	656	4.73	59.59	3.74
200101	200626	C	585	7.99	79	9.57	398	3.31	809	394	2.87	1225	395	3.02	1079	5.69	81.80	4.70
200254	200707	C	273	5.14	83	11.83	307	2.74	812	199	1.34	1148	236	1.83	1030	3.40	49.56	4.31
200315	200810	C	706	10.88	49	6.57	537	4.94	425	479	4.51	443	488	4.66	436	6.66	119.51	1.74
200364	200796	C	102	0.22	161	13.49	202	1.29	1297	145	0.27	1852	164	0.62	1657	2.36	16.78	6.88
200394	200824	C	267	5.54	120	10.69	337	7.72	59	252	4.58	282	281	5.67	253	4.05	153.58	0.83
200407	200844	C	284	5.37	99	10.70	267	3.15	774	194	1.63	1201	219	2.16	1051	3.14	58.32	4.39
200414	200883	C	276	7.26	36	7.95	351	4.97	436	242	2.71	1135	280	3.50	889	4.02	94.51	3.78
200370	201187	R	174	3.78	122	13.70	257	2.58	667	127	1.10	1058	172	1.61	921	2.34	41.17	3.69
200264	200727	C	171	0.07	116	11.42	362	2.57	654	267	0.97	976	300	1.13	799	3.47	24.60	3.01
200393	200822	C	145	0.75	178	13.47	218	1.55	1251	156	0.36	1588	177	0.77	1473	2.05	16.76	4.90
200328	200767	C	192	0.39	192	13.24	609	3.78	730	201	1.98	974	343	2.61	888	3.97	58.82	2.98
200328	200768	H	207	1.61	125	12.83				180	0.93	1282						
200329	200591	C	362	4.23	95	12.07	512	3.67	1260	291	1.90	2174	368	2.25	1854	4.26	48.98	6.69
200372	200880	C	136	1.17	98	13.57	294	3.39	725	157	0.94	1651	204	1.79	936	2.36	38.89	3.18
200374	200838	C	140	0.10	182	13.06	338	2.25	1157	225	0.26	1871	284	0.85	1624	3.05	20.44	6.19
200380	200869	C	126	1.80	205	13.09	245	1.69	578	538	2.93	543	434	2.49	555	5.02	54.11	1.87
200398	200917	C	175	0.19	333	14.28	313	3.25	1256	182	0.76	2297	227	1.30	1932	2.43	28.30	6.30
200322	200901	C	413	9.14	82	9.58	497	4.09	1149	310	2.25	1570	354	2.89	1686	4.09	62.83	5.72
200400	200919	C	333	7.47	91	9.91	243	1.37	1197	211	1.22	1607	222	1.27	1473	2.57	27.64	3.57
200415	200873	C	327	7.25	30	10.22	274	2.42	790	219	1.51	872	221	1.82	835	2.43	39.55	3.36
200418	200874	C	485	9.72	59	8.47	709	3.58	817	473	2.64	1064	554	2.98	975	6.42	84.32	3.26

COLD AND HOT START TEST DATA HOUSTON PHASE II PROCESSING DATE- 11/27/72

			-----CYCLE 7 IDLE-----				---CYCLES 1-4---			---CYCLES 6-7---			---COMPOSITE----			--MASS EQUIVALENT--		
CAR NO	RUN NO	S	HC	CO	NO	CO2	HC	CO	NO	HC	CO	NO	HC	CO	NO	HC	CO	NOXC
200418	200857	C	302	3.31	112	12.66	317	2.39	775	242	0.94	1190	264	1.41	1044	3.10	30.64	3.52
200308	200826	H	226	0.39	269	13.22	363	5.87	1022	230	0.45	2307	281	1.64	1857	3.25	35.70	6.13
200221	200688	C	173	2.07	81	12.53	559	4.27	1024	398	0.27	2179	451	1.66	1774	5.22	36.14	5.90
200270	200837	C	174	2.80	56	11.02	226	1.78	526	152	0.67	910	177	1.05	775	2.05	22.85	2.56
200280	200757	C	130	2.43	132	14.60	229	2.37	907	141	0.41	1455	173	1.09	1263	2.00	23.72	4.74
200292	200763	C	265	2.39	127	11.20	257	2.49	1033	149	0.62	1202	186	1.27	1142	2.15	27.64	3.76
200292	200763	H	265	3.03	71	11.36				161	0.59	979						
200296	200742	C	102	0.12	614	12.74	219	1.87	1095	148	0.30	1614	172	0.90	1432	1.99	19.58	4.72
200320	200771	C	238	4.19	96	11.93	332	2.73	1198	185	0.82	1794	236	1.48	1585	2.73	32.22	5.92
200336	200774	C	130	1.22	95	12.75	175	0.89	1098	172	0.69	1539	173	0.75	1384	2.00	16.32	4.64
200338	200795	C	67	0.10	159	12.46	252	3.02	713	112	0.51	1149	164	1.38	996	1.90	30.04	3.33
200353	200742	C	117	0.43	232	13.33	161	0.59	1595	140	0.21	1648	147	0.34	1629	1.70	7.39	5.45
200362	200813	C	211	2.83	119	11.90	331	3.53	473	165	1.27	745	223	2.06	649	2.58	44.84	2.18
200369	200842	C	196	1.46	69	12.41	316	2.03	851	177	0.58	1318	225	1.38	1156	2.85	32.07	4.42
200391	200914	C	162	4.66	100	10.77	236	3.13	1102	152	1.26	1767	181	1.91	1534	2.09	41.51	5.71
200331	200913	H	164	4.22	124	10.85				143	0.92	2169						
200369	200863	R	216	1.46	99	12.56	389	3.31	757	240	0.75	1218	292	1.64	1056	3.70	39.06	3.93
200010	200903	C	913	3.60	71	9.11	744	3.26	729	723	1.08	1151	730	1.84	1003	8.45	39.98	3.40
200030	200899	C	764	5.75	56	9.21	660	3.39	1204	610	1.44	2198	627	2.12	1850	7.95	50.50	6.87
200060	200598	C	410	6.43	58	10.77	412	2.79	1126	342	1.47	1653	366	1.93	1468	4.26	42.02	5.11
200051	200586	C	587	5.26	79	11.16	583	1.64	1448	402	1.44	1680	465	1.51	1598	5.39	32.86	5.73
200079	200639	C	1569	9.27	46	7.52	699	3.07	1203	705	2.90	1226	702	2.95	1217	8.92	70.42	4.42
200096	200590	C	253	3.27	133	12.68	359	2.51	1242	255	1.06	1600	291	1.56	1476	3.37	33.96	5.10
200106	200848	C	299	4.73	128	11.47	337	1.65	1646	267	0.96	2206	273	1.20	2010	3.21	26.07	6.69
200112	200653	C	370	3.85	159	12.06	307	1.35	1753	265	1.14	2186	279	1.21	2036	3.23	26.36	6.86
200126	200661	C	326	4.44	80	10.99	427	2.87	1274	300	1.47	1870	344	1.95	1661	3.98	42.45	5.63
200149	200639	C	176	1.82	197	12.91	273	3.13	850	191	0.84	1440	219	1.64	1233	2.53	35.70	4.20
200156	200971	C	923	10.43	41	8.17	549	4.09	626	579	3.22	801	568	3.52	739	6.57	76.49	2.53
200171	200643	C	568	5.56	72	10.95	438	1.56	1964	371	1.03	2470	383	1.21	2292	4.44	26.36	7.69
200171	200656	R	560	5.67	83	10.75	420	1.81	1763	391	1.15	2126	401	1.38	1997	4.65	30.06	6.68
200009	200896	C	406	6.78	87	9.95	397	3.16	1296	337	1.95	1579	356	2.37	1479	4.49	56.45	5.56
200036	200599	C	1096	7.76	-8	8.10	965	7.06	149	708	5.89	220	797	6.29	195	9.26	136.95	0.68
200092	200606	C	1010	11.26	35	7.13	679	5.89	280	703	5.95	310	696	5.92	299	8.82	141.36	1.28
200097	200659	C	312	5.61	68	11.69	455	3.37	766	303	1.31	1193	356	2.03	1043	4.86	52.06	4.16
200116	200886	C	386	5.10	92	10.67	495	4.29	789	363	2.78	1042	396	3.30	953	5.39	84.41	4.41
200125	200640	C	837	10.64	93	6.99	1257	8.07	140	566	7.25	216	806	7.53	188	10.26	179.77	0.70
200143	200627	C	492	2.79	211	12.96	632	1.96	1276	568	1.17	1540	579	1.44	1446	7.36	34.37	5.56
200176	200818	C	877	12.01	73	6.87	718	6.99	186	765	6.11	231	749	6.38	215	8.67	138.91	0.72
200207	200776	C	307	6.05	76	10.11	348	3.41	553	300	2.77	730	316	2.99	668	4.01	71.38	2.74
200222	200716	C	288	5.41	109	10.99	219	2.06	642	196	2.15	652	202	2.11	649	2.36	45.93	2.25
200256	200722	C	246	3.29	102	11.98	367	2.96	690	193	0.92	988	253	1.63	883	3.21	38.91	3.70
200176	200829	R	868	11.07	46	6.87	757	6.46	191	723	6.39	206	736	6.41	199	8.51	139.56	0.68
200006	200571	C	431	9.46	102	9.31	393	3.62	1172	340	2.42	1410	358	2.84	1326	4.55	67.80	5.08
200005	200572	C	302	5.19	17	10.90	232	2.02	731	175	1.06	865	196	1.39	818	2.46	33.18	3.13
200016	200576	C	351	5.78	-8	9.78	352	2.16	1361	290	1.40	1656	311	1.65	1552	3.95	39.39	6.07
200077	200605	C	305	3.28	90	12.41	267	1.98	890	211	0.60	1274	230	1.08	1139	2.92	25.77	4.89
200078	200666	C	318	7.57	50	7.78	303	4.00	707	275	2.69	1694	316	3.04	1348	4.01	91.68	4.89
200081	200575	C	567	4.49	88	11.38	365	1.35	2169	359	0.93	2467	356	1.07	2362	4.83	27.43	9.96
200091	200603	C	407	9.00	53	8.82	347	2.30	1362	325	2.26	1512	332	2.26	1459	4.22	53.95	6.23
200102	200615	C	296	7.32	72	10.18	353	3.16	760	276	1.99	925	302	2.39	867	3.50	52.03	4.06
200140	200670	C	619	7.09	57	9.17	490	5.30	525	393	1.33	1897	426	2.71	1416	5.41	64.69	5.24
200198	200568	C	458	8.63	-8	9.41	385	2.16	1881	339	1.40	2267	355	1.67	2119	4.11	36.30	7.45
200253	200573	C	280	4.75	65	11.65	323	2.99	1442	262	1.36	1755	283	1.88	1645	3.59	44.88	6.28
200255	200768	C	306	5.15	61	10.67	381	1.86	1709	335	0.88	2252	351	1.22	2061	4.79	31.28	9.04
200257	200701	C	262	5.26	96	10.96	342	3.65	998	207	0.90	1908	254	1.86	1589	3.22	44.40	5.83
200257	200702	H	262	4.59	107	11.51				247	0.74	1893						
200278	200569	C	233	1.65	75	12.93	361	2.06	1171	309	1.01	1691	327	1.58	1508	4.15	37.72	5.81
200378	200917	C	298	6.73	77	10.62	321	4.43	876	250	1.69	1683	274	2.64	1400	3.47	62.89	5.41
200378	200923	R	301	6.88	76	9.31	366	4.93	807	277	1.68	1992	308	2.81	1577	3.90	66.93	6.66
200105	200698	C	201	4.32	148	12.05	227	2.26	1311	161	0.89	1635	186	1.36	1521	2.33	32.46	5.68
200283	200862	C	256	4.19	57	10.83	307	3.22	458	227	1.66	583	256	2.20	539	3.22	52.40	2.30
200319	200858	C	276	4.50	93	11.96	333	2.81	800	277	1.57	1132	296	2.00	1015	3.75	47.66	3.80
200333	200781	C	258	6.97	56	6.63	328	4.27	417	228	2.79	701	263	3.30	601	3.36	78.78	2.22
200342	200777	C	129	0.83	246	8.16	249	1.47	1391	200	0.59	1805	217	0.89	1660	2.75	21.26	6.85
200343	200892	C	368	7.08	46	9.20	391	3.42	723	273	2.39	923	316	2.75	787	3.98	65.51	3.31
200346	200783	C	4312	9.66	75	5.86	1099	4.13	461	1472	4.29	473	1340	4.23	468	17.06	100.99	1.73
200345	200883	C	211	0.16	279	12.63	349	0.36	2667	407	0.44	2436	386	0.40	2439	4.89	9.52	10.27
200356	200786	C	763	10.66	58	7.66	665	6.32	233	766	6.16	252	710	6.21	245	9.69	159.26	0.97
200369	200860	C	251	6.02	63	8.29	209	1.69	974	206	2.00	1048	205	1.88	1022	2.79	48.08	4.71
200417	200903	C	213	3.28	139	13.29	270	4.46	251	188	2.60	485	219	3.25	403	2.98	83.13	1.60
200410	200415	R	179	2.26	186	13.62	237	3.76	479	172	1.92	626	196	2.56	573	2.64	65.48	2.28
200009	200893	C	318	6.56	96	10.12	322	3.07	1967	251	1.42	2595	276	1.99	2235	3.49	47.40	8.30
200086	200606	C	246	4.19	169	11.99	350	2.11	1167	297	1.85	1560	315	1.96	1415	4.00	46.31	6.38
200088	200807	C	338	6.31	99	9.56	366	2.62	1365	326	1.92	1956	340	2.16	1742	4.32	51.56	6.42
200113	200697	C	191	0.37	1037	13.75	263	2.40	2519	170	0.32	3712	202	1.06	3296	2.36	22.66	11.00
200150	200718	C	176	2.10	76	12.98	223	1.05	1165	173	0.66	1793	190	1.09	1566	2.20	23.72	5.26
200159	200667	C	195	3.13	128	11.55	297	2.67	1066	246	1.77	1480	260	2.08	1327	3.30	49.65	5.56
200178	200979	C	137	0.66	187	13.93	269	2.06	1062	167	0.42	1557	195	0.99	1383	2.47	23.57	5.73

COLD AND HOT START ST DATA — HOUSTON, PHASE II — PROCESSING DATE- 3/27/72

CAR NO	RUN NO	S	IDLE HC	IDLE CO	IDLE NO	IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200183	200863	C	438	9.67	94	11.02	373	2.34	1236	306	1.54	1876	329	1.82	1652	4.17	43.35	7.10
200187	200862	C	213	2.80	169	12.90	273	2.31	1291	204	1.08	1863	229	1.51	1649	2.89	36.04	6.34
200196	200880	C	301	5.17	88	10.65	295	2.27	771	243	1.27	1548	261	1.61	1276	3.31	38.43	5.11
200174	200873	R	120	0.61	197	13.62	260	2.20	967	165	0.96	1936	199	1.13	1336	2.51	26.91	5.03
200019	200541	C	282	2.84	93	12.76	247	1.98	579	170	0.69	965	196	1.16	829	2.49	27.21	3.13
200358	200644	C	213	5.68	70	9.66	184	2.64	921	151	1.77	883	162	2.07	756	2.21	33.08	3.40
200359	200590	C	248	1.69	151	13.42	305	1.86	1496	266	0.98	2091	279	1.28	1879	3.41	32.82	7.98
200330	200621	C	204	1.83	119	13.45	259	1.40	1027	230	1.02	1365	240	1.15	1246	3.27	29.48	6.82
200096	200595	C	364	6.90	75	10.23	217	1.68	770	216	1.78	841	216	1.76	816	2.74	41.54	3.37
200103	200631	C	276	5.50	117	11.34	305	3.39	960	236	1.99	1626	260	2.47	1392	3.54	63.32	5.39
200117	200632	C	172	0.60	285	13.34	297	1.72	1651	233	0.53	2363	255	0.94	2113	3.48	24.10	8.18
200120	200635	C	307	5.58	104	11.07	298	2.44	1337	251	1.86	1781	267	2.06	1625	3.64	52.82	6.33
200144	200642	C	356	6.54	37	9.70	362	2.92	1264	294	2.00	1650	317	2.32	1507	4.33	59.49	6.01
200167	200630	C	342	5.03	93	11.54	309	4.14	720	294	1.68	1338	330	2.54	1121	4.90	65.13	4.21
200197	201209	C	208	3.61	165	17.50	276	2.83	1412	195	1.60	1954	223	2.03	1764	3.03	51.92	6.23
200247	200737	C	283	2.87	117	11.76	291	2.04	833	242	1.10	1364	259	1.42	1178	3.29	33.89	4.87
200247	200738	R	253	2.51	115	13.38	274	2.03	686	220	0.92	1220	238	1.30	1033	3.02	31.03	3.79
200174	200657	C	298	6.76	76	9.85	312	3.07	1293	264	1.78	1705	280	2.23	1557	3.82	57.18	6.13
200200	200734	C	266	4.15	97	11.79	299	2.37	1460	288	2.25	1693	291	2.29	1611	3.97	59.73	7.01
200227	200644	C	350	10.79	43	7.21	343	6.22	231	301	6.01	287	315	6.08	267	4.30	155.92	1.16
200275	200788	C	382	7.18	76	9.62	329	2.50	999	319	1.89	1216	322	2.10	1140	4.09	50.13	4.27
200312	200765	C	371	8.09	58	9.11	270	3.33	638	246	2.67	703	254	2.90	610	3.46	74.36	2.70
200365	200800	C	506	9.75	83	10.25	352	3.25	1230	329	1.57	1881	337	2.15	1693	4.60	55.13	6.89
200367	200802	C	192	3.09	74	11.06	300	3.16	1034	235	0.96	1571	257	1.73	1372	3.51	44.36	5.42
200404	200673	C	218	3.93	91	11.94	271	2.60	802	192	0.87	1680	219	1.47	1372	2.99	37.69	5.32
200406	200841	C	432	8.89	41	8.96	464	3.36	1093	402	2.39	1423	424	2.73	1304	5.78	69.83	5.82
200408	200844	C	224	2.76	89	12.53	307	1.21	1362	278	0.90	1788	288	1.00	1638	4.14	27.00	7.03
200413	200850	C	470	7.26	56	9.40	423	2.63	1457	394	1.92	1861	404	2.16	1719	5.50	55.24	6.84
200417	200875	C	1483	11.63	-8	7.00	566	4.51	358	584	3.76	453	577	4.02	419	7.86	102.83	1.67
200406	200853	R	417	8.79	42	8.71	460	3.35	1060	406	2.49	1304	424	2.79	1218	5.77	71.36	5.50
200027	200602	C	506	7.50	63	9.87	458	3.87	612	390	2.33	1069	413	2.86	909	5.25	68.28	3.79
200037	200587	C	224	6.29	75	9.72	402	3.80	737	232	2.39	1155	291	2.88	1008	3.70	68.75	3.85
200341	200597	C	409	5.73	33	10.49	483	3.22	755	292	1.80	1067	358	2.29	957	4.55	54.67	4.02
200063	200607	C	202	5.29	21	11.26	260	1.93	544	196	1.63	581	218	1.73	555	2.97	44.36	2.55
200082	200604	C	485	8.18	30	9.45	469	3.47	595	305	2.73	745	362	2.98	692	4.60	71.14	2.94
200093	200643	C	292	8.94	37	8.32	353	4.33	739	226	2.61	1105	270	3.21	976	5.43	76.63	3.82
200146	200972	C	264	4.46	100	11.60	337	3.12	1121	251	2.04	1536	281	2.41	1390	3.25	52.37	4.65
200214	200693	C	411	1.05	107	12.15	374	2.96	1293	392	0.62	1902	385	1.56	1688	4.89	37.24	6.18
200229	200735	C	479	7.29	49	9.36	317	2.58	375	359	3.04	360	344	2.87	345	4.37	68.51	1.90
200232	200740	C	379	10.22	50	8.41	322	3.84	800	259	3.23	1033	281	3.44	951	3.25	74.89	3.92
200244	200694	C	129	1.28	103	13.02	343	3.37	1190	231	0.90	1775	270	1.76	1570	3.13	38.31	5.24
200245	200710	C	302	8.95	45	8.89	391	4.03	743	260	2.65	1108	305	3.13	980	3.87	74.72	3.59
200245	200711	H	294	8.50	53	9.21				257	2.74	974						
200272	200730	C	225	4.12	79	11.71	286	2.93	740	235	1.49	1159	252	1.99	1009	3.20	47.50	4.18
200273	200839	C	216	3.60	-12	3.34	418	3.37	566	330	2.72	716	360	2.94	656	4.90	75.20	2.94
200272	200733	R	205	3.75	76	12.17	321	3.36	801	211	1.34	1146	249	2.04	1025	3.16	48.70	4.24
200083	200601	C	447	6.16	82	10.44	327	4.22	367	343	4.22	336	337	4.22	346	4.59	108.18	1.55
200145	200717	C	184	2.52	131	12.52	195	0.73	1572	145	0.77	1548	162	0.75	1556	2.21	19.23	6.88
200199	200695	C	81	0.96	134	11.76	296	4.17	694	107	0.39	1565	169	1.71	1260	2.30	43.85	4.97
200199	200696	H	80	0.99	79	11.31				121	0.36	1394						
200220	200706	C	164	1.83	89	12.98	222	2.26	825	165	1.19	1028	184	1.56	956	2.51	40.00	3.79
200228	200720	C	429	4.88	78	11.48	257	3.51	678	269	3.22	755	264	3.32	728	3.60	84.93	3.29
200228	200721	H	319	1.68	251	13.23				206	0.55	1582						
200259	201180	C	173	3.70	115	10.96	155	1.40	1603	137	1.02	1736	143	1.15	1689	1.94	29.41	7.62
200277	200803	C	328	3.34	192	12.12	218	2.20	1169	182	0.91	1695	194	1.36	1510	2.64	34.87	5.97
200305	200785	C	141	3.07	102	12.02	234	4.96	449	98	0.73	1327	145	2.21	1019	1.98	56.67	3.94
200405	200859	C	260	0.90	156	13.02	237	1.60	1199	212	0.84	1489	220	1.10	1387	2.99	28.13	5.47
200420	200868	C	128	1.51	85	12.36	202	2.04	982	152	0.97	1396	169	1.34	1251	2.30	34.27	5.88
200259	201181	R	146	3.93	91	10.90	171	1.97	1278	126	0.94	1827	141	1.30	1634	1.92	33.25	6.60
200093	200889	C	562	10.18	58	8.60	342	3.89	898	342	3.70	910	342	3.76	905	4.65	96.18	3.61
200065	200593	C	232	6.57	87	10.69	350	4.59	653	231	2.36	1176	273	3.13	993	3.72	80.07	4.00
200132	200625	C	214	5.89	59	10.83	238	2.85	903	197	1.93	1191	211	2.25	1030	2.88	57.69	4.60
200303	200908	C	185	6.71	83	10.63	371	4.42	549	164	2.21	924	236	2.98	792	2.99	70.98	2.94
200318	200782	C	250	6.35	78	10.29	341	3.67	819	253	2.24	1187	283	2.67	1058	3.59	63.74	3.91
200331	200758	C	207	4.09	50	5.92	332	3.95	899	266	2.24	1224	278	2.83	1110	3.79	72.58	4.29
200349	200799	C	368	8.61	57	9.13	374	4.40	429	298	2.23	1084	324	2.98	854	4.42	76.42	3.36
200340	200916	C	238	7.38	84	10.71	325	6.03	311	217	3.41	754	254	4.32	598	3.22	102.91	2.16
200377	200852	C	395	5.46	101	11.02	376	1.57	1242	315	1.73	1249	336	1.67	1246	4.57	42.71	5.63
200379	200835	C	349	10.01	56	8.31	341	4.39	500	294	3.28	748	313	3.66	661	3.94	87.34	2.38
200347	200812	C	181	4.57	98	11.01	312	5.55	479	186	1.42	1275	230	2.86	937	2.92	68 10	3.69
200330	200922	C	207	5.03	102	11.30	287	3.29	1243	205	1.72	1793	233	2.26	1630	2.95	53.83	6.05
200303	200913	R	179	5.92	101	10.49	283	4.47	659	180	2.18	1106	216	2.98	949	2.74	70.98	3.52
200340	200925	?	206	5.66	99	11.04	262	3.11	1112	202	1.92	1554	223	2.33	1399	2.82	55.50	5.70
200342	200930	C	191	5.20	104	11.43	179	1.13	1974	164	1.12	1914	169	1.12	1870	2.30	28.64	7.46
200064	200809	C	525	7.31	16	9.21	415	2.82	797	357	2.09	1003	377	2.34	930	5.14	59.98	4.16
200129	200914	C	218	4.44	93	11.19	476	4.32	996	207	1.65	1429	301	2.58	1277	4.10	65.93	5.09
200139	200834	C	333	7.18	69	10.34	351	3.34	905	305	2.36	1121	321	2.71	1045	4.38	69.49	4.07
200184	200879	C	222	3.30	96	10.77	300	3.63	935	211	1.23	1299	242	2.06	1052	3.30	52.82	4.43
200194	200880	C	140	4.17	99	10.61	271	3.64	744	200	1.48	1426	224	2.24	1197	3.05	57.44	4.76
200192	200872	C	242	4.49	74	10.09	239	1.97	860	187	1.21	1419	202	1.47	1216	2.75	37.69	4.89

COLD AND HOT START TEST DATA — HOUSTON, PHASE II — PROCESSING DATE- 3/21/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-6 HC	CYCLES 1-6 CO	CYCLES 1-6 NO	CYCLES 4-7 HC	CYCLES 4-7 CO	CYCLES 4-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200212	200700	C	149	2.60	165	12.07	348	3.03	1332	244	0.72	2289	280	1.52	1954	3.82	38.97	7.70
200252	200710	C	254	7.45	81	9.75	303	6.37	816	215	1.83	1444	247	2.71	1224	3.37	69.49	4.84
200267	200714	C	148	3.79	102	12.09	328	2.50	1055	198	1.12	1558	243	1.60	1381	3.31	41.03	6.24
200288	200886	C	179	4.87	124	11.70	284	3.85	1080	195	1.62	1530	226	2.40	1372	3.07	61.39	5.31
200288	200887	H	202	6.01	89	10.45	238	2.96	1330	191	1.73	1719	207	2.12	1582	2.91	54.22	5.98
200142	200624	C	133	2.65	99	10.69	242	2.10	1588	179	1.01	1996	201	1.39	1853	2.89	37.64	7.81
200154	200655	C	76	1.08	156	11.08	175	2.01	1397	118	0.68	1894	137	1.14	1706	1.97	30.87	7.34
200299	200801	C	100	1.53	89	11.01	229	2.25	1139	159	0.62	1800	183	1.19	1589	2.63	32.13	6.72
200301	200861	C	179	2.48	150	11.19	215	2.90	752	162	1.36	1266	180	1.91	1086	2.58	51.57	5.29
200313	201150	C	94	2.03	73	12.23	160	1.07	1916	118	1.06	2070	132	1.06	2016	1.89	28.61	9.40
200325	200764	C	96	1.30	72	10.98	172	2.51	1202	118	0.79	1678	136	1.39	1511	1.96	37.64	7.05
200330	200905	C	123	2.98	82	10.83	1698	7.25	182	183	1.97	1770	713	3.31	1214	10.25	102.87	5.11
200330	200906	H	113	3.32	96	10.58				187	1.93	1809						
200340	200816	C	79	1.08	146	10.80	294	2.65	1153	74	0.72	1069	137	1.32	1098	1.97	35.75	4.58
200341	200869	C	137	2.98	67	10.95	190	2.00	945	139	0.69	1604	156	1.14	1373	2.24	30.78	6.87
200341	200870	H	137	2.77	77	10.73				150	0.78	1532						
200364	200879	C	96	1.30	83	10.98	181	1.76	1162	132	0.61	1986	149	0.88	1697	2.14	23.75	7.18
200381	200871	C	136	3.50	92	10.16	233	3.29	743	168	2.07	1009	190	2.49	915	2.73	67.23	4.57
200381	200872	H	136	3.40	93	10.39				171	2.06	1041						
200384	201195	C	106	2.20	65	12.26	184	1.56	1110	137	0.55	1656	153	0.90	1464	2.20	24.30	6.49
200344	201189	H	93	1.98	69	11.00	192	1.69	1362	138	0.59	1743	156	0.97	1609	2.24	26.19	7.13
200316	200578	C	240	6.40	32	9.34	524	2.24	1766	566	2.53	1381	550	2.42	1515	3.54	29.32	2.83
200031	200614	C	410	1.37	-8	7.31	911	1.76	1442	446	1.20	1177	464	1.39	1269	3.02	16.84	2.93
200046	200549	C	236	3.10	44	6.39	493	2.81	1323	399	2.92	1196	431	2.81	1240	2.78	36.04	2.68
200047	200611	C	7591	6.79	112	3.25	2582	6.92	340	2999	6.52	265	2853	6.51	291	18.40	78.88	3.65
200049	200542	C	185	3.30	55	9.25	471	1.99	1273	439	1.28	1389	452	1.52	1368	2.90	18.41	2.98
200066	200615	C	163	0.87	20	3.77	569	1.84	1611	388	1.23	1361	464	1.44	1378	2.86	17.44	3.19
200067	200592	C	1533	1.08	99	8.30	817	1.36	1936	921	1.40	1575	556	1.38	1731	3.57	16.72	3.34
200069	200598	C	303	2.98	38	5.06	613	3.27	1418	541	2.96	1365	566	3.06	1383	3.65	37.07	2.90
200137	200663	C	805	3.60	21	5.11	802	2.78	1728	770	3.02	1222	711	2.93	1399	4.58	35.50	2.73
200177	200724	C	646	4.14	-8	5.65	498	3.90	1181	406	3.04	1129	439	3.20	1147	3.14	43.13	2.72
200198	200732	C	184	3.64	41	7.10	900	2.87	1223	446	1.98	1357	464	2.32	1310	2.99	28.11	2.75
200421	200856	C	195	2.30	82	10.31	624	2.21	1593	379	1.62	1579	394	1.69	1583	2.54	20.47	2.98
200177	200728	R	550	4.22	46	6.11	377	3.12	1335	659	3.85	733	560	3.59	943	4.02	48.38	2.21
200118	200965	C	313	5.64	90	9.91	420	2.16	1384	333	2.73	1061	363	2.53	1174	2.88	37.64	2.83
200151	200687	C	430	6.93	62	7.64	579	5.59	379	499	5.92	309	527	5.80	334	4.18	86.39	0.76
200152	200693	C	2714	1.35	66	9.45	1127	2.37	231	1109	2.63	374	1114	2.54	324	8.84	37.73	0.80
200229	200716	C	503	3.10	73	12.14	379	1.56	1060	245	1.37	1181	292	1.48	1139	2.31	22.02	2.98
200230	200749	C	132	1.79	105	11.71	296	1.80	1609	204	0.97	1907	236	1.19	1678	1.87	17.71	3.46
200240	200854	C	290	3.61	69	11.40	623	1.94	1700	310	1.40	1772	421	1.46	1747	3.33	21.72	4.09
200261	200747	C	260	2.08	82	12.27	348	1.02	1267	257	0.88	1554	289	0.80	1454	2.29	11.90	3.71
200299	200769	C	274	0.84	75	12.43	425	1.42	1523	242	0.53	1991	306	0.84	1801	2.43	12.50	4.20
200376	201192	C	400	0.25	83	11.44	405	1.10	798	242	1.13	806	299	1.11	803	2.37	16.53	1.87
200376	201188	R	482	0.97	81	9.48	416	0.99	691	247	1.25	657	306	1.15	668	2.42	17.13	1.60

TABLE B-6

Houston

Phase III

COLD AND HOT START TEST DATA — HOUSTON PHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 1 IDLE HC	CYCLE 1 IDLE CO	CYCLE 1 IDLE NO	CYCLE 1 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200282	301479	C	174	0.60	178	14.25	340	1.92	782	263	0.45	1206	280	0.96	1057	2.97	18.53	4.03
200271	301503	C	150	2.25	87	11.44	354	2.49	1201	250	1.69	1428	287	1.96	1368	2.64	34.06	4.13
200297	301496	C	226	4.17	98	12.08	376	2.24	1164	325	1.70	1447	342	1.48	1347	3.16	32.67	4.10
200314	301841	C	199	5.10	77	10.73	445	2.59	1079	345	2.15	1294	379	2.30	1218	3.50	39.97	4.49
200314	301842	H	189	4.35	100	11.15				335	2.03	1397						
200332	301475	C	254	4.18	116	12.21	367	1.81	1340	243	1.22	1925	284	1.42	1720	2.94	27.41	6.38
200347	301673	C	112	0.12	130	13.28	506	0.93	1012	437	0.56	1098	461	0.68	1067	4.26	11.81	3.52
200341	301746	C	226	6.24	101	10.65	316	2.11	1275	202	1.59	1820	242	1.77	1629	2.79	38.46	6.87
200356	301727	C	152	2.78	94	12.89	372	1.50	944	269	0.94	1142	304	1.13	1037	2.81	19.64	3.80
200358	301528	C	299	4.52	80	11.66	404	2.63	1015	312	3.01	705	344	2.87	813	3.98	62.37	2.97
200373	301505	C	448	6.30	104	10.62	470	2.49	1005	320	2.35	1246	372	2.39	1161	4.29	51.94	4.60
200297	301501	R	206	4.27	91	11.92	378	2.06	1204	317	1.84	1505	337	1.91	1399	3.12	33.20	4.25
200056	301861	C	350	4.74	117	11.63	357	2.05	1160	236	1.02	1584	278	1.39	1435	2.85	26.83	5.93
200123	301672	C	218	4.18	90	11.22	427	4.82	270	263	3.43	486	319	3.91	410	2.95	67.96	1.35
200181	301425	C	271	4.25	131	12.11	281	2.40	1393	195	1.03	1943	225	1.50	1746	2.31	28.96	6.46
200215	301393	C	393	5.82	76	11.47	2975	6.70	371	420	3.44	557	1314	4.58	491	12.16	79.61	1.35
200234	301394	C	270	4.29	146	11.94	515	4.14	1310	233	1.23	2396	331	2.24	2015	3.40	43.25	6.26
200259	301649	C	233	1.83	267	13.08	276	1.33	1728	209	0.54	2191	232	0.81	2028	2.39	15.63	8.25
200294	301654	C	581	10.03	65	8.28	550	3.88	860	424	3.00	1256	467	3.30	1117	4.80	63.72	4.15
200310	301650	C	276	5.78	140	10.83	282	3.47	1616	201	2.26	2310	229	2.68	2067	2.65	58.24	9.46
200317	301847	C	191	1.82	216	13.30	242	1.89	1306	151	0.56	1883	182	1.02	1681	1.87	19.69	5.98
200317	301856	H	167	1.60	251	13.40				137	0.55	1930						
200321	301561	C	267	4.89	122	9.92	319	2.73	1872	232	1.91	2148	262	2.19	2051	2.69	42.28	6.80
200317	301855	R	189	1.84	244	13.29	242	1.69	1451	142	0.57	1977	177	0.96	1792	1.82	18.53	6.37
200013	301377	C	73	0.12	144	13.64	211	1.73	1254	155	0.25	1583	174	0.76	1467	2.01	15.51	4.89
200015	301627	C	259	2.72	116	13.16	347	2.60	689	308	2.97	621	320	2.84	644	3.70	61.72	2.55
200018	301391	C	312	2.24	339	13.45	383	2.52	1190	306	2.04	1246	325	2.20	1226	4.12	52.40	4.73
200025	301775	C	336	7.36	67	10.22	317	3.51	1189	272	2.99	1533	287	3.17	1412	3.32	68.88	6.09
200025	301776	C	312	7.12	99	10.48				259	2.87	1439						
200038	301698	C	199	2.35	147	12.55	314	1.68	1462	327	1.07	1883	322	1.28	1735	4.38	32.74	8.65
200073	301616	C	404	5.50	73	11.13	467	5.39	274	309	3.06	786	364	3.87	593	4.62	92.18	2.71
200095	301683	C	359	9.11	36	9.07	401	3.35	750	301	2.82	1044	336	3.00	941	4.26	71.46	4.36
200099	301565	C	463	10.98	34	7.58	337	2.71	1859	309	2.95	1910	318	2.86	1892	4.03	68.12	7.89
200108	301527	C	350	0.25	132	13.45	408	0.99	1643	349	0.39	1957	395	0.59	1847	5.01	14.05	8.47
200110	301676	C	143	2.18	109	12.18	369	3.05	772	207	0.99	1586	263	1.71	1301	3.33	40.73	5.80
200110	301677	H	139	2.06	111	12.30				202	0.88	1581						
200111	301647	C	298	6.30	85	12.16	325	2.73	643	210	2.04	888	250	2.28	802	3.16	54.31	3.79
200169	301691	C	177	2.57	113	13.14	335	3.09	898	236	1.59	1277	270	2.11	1144	3.12	45.85	4.84
200198	301533	?	327	0.20	142	13.36	399	0.86	1620	388	0.37	2015	391	0.54	1876	4.95	12.83	8.81
200169	301696	R	185	2.79	130	12.95	319	2.80	834	250	2.01	1031	274	2.28	962	3.17	49.55	4.24
200147	301529	C	491	5.05	66	11.29	520	2.43	1101	367	2.46	1385	420	2.44	1285	5.33	58.12	6.06
200158	301531	C	546	9.38	47	8.59	679	5.84	470	457	4.66	784	535	5.07	674	7.27	129.68	3.47
200152	301697	C	181	3.45	84	12.14	313	2.43	991	359	1.93	1436	343	2.10	1280	4.34	50.02	5.62
200194	301545	C	186	2.25	70	12.54	299	2.34	1084	245	1.30	1329	263	1.66	1243	3.33	39.54	5.34
200201	301620	C	244	4.58	51	10.49	357	2.88	869	320	2.51	957	333	2.63	926	4.52	67.27	4.72
200201	301621	H	266	4.64	54	10.59				319	2.66	930						
200204	301633	C	185	2.94	82	13.02	236	1.10	801	191	0.90	860	206	0.97	839	2.80	24.80	4.21
200216	301710	C	267	3.26	69	11.63	420	3.57	772	285	1.48	1299	331	2.21	1114	3.83	48.02	4.70
200217	301695	C	127	0.16	67	13.16	260	1.11	1006	231	0.36	1288	241	0.62	1189	3.28	15.85	6.17
200194	301549	R	163	2.25	71	12.79	319	2.27	1212	232	1.23	1369	262	1.59	1314	3.32	37.87	5.59
200113	301920	C	273	3.11	95	12.79	352	2.55	1141	258	1.43	1433	290	1.82	1330	4.34	51.14	8.12
200127	301698	C	226	5.08	63	9.74	405	1.93	595	189	1.58	724	264	1.70	678	3.58	43.48	3.37
200149	301724	C	156	2.62	82	12.94	219	1.98	671	191	1.86	703	200	1.90	691	2.72	48.60	3.48
200180	301615	C	176	1.75	82	12.69	324	3.83	586	257	0.76	1072	281	1.83	901	3.82	46.81	4.43
200224	301658	C	249	1.23	68	12.83	308	1.21	441	191	0.52	930	231	0.76	498	2.93	18.10	2.24
200246	301534	C	335	5.41	63	11.06	266	1.26	1318	292	1.47	1258	275	1.39	1279	3.74	35.55	6.56
200266	301640	C	261	4.45	77	12.07	282	2.12	1366	249	1.84	1466	260	1.93	1431	3.53	49.36	7.03
200285	301736	C	213	2.07	57	7.82	318	3.73	435	243	1.87	767	269	2.52	650	3.41	60.02	3.20
200307	301764	C	395	4.40	62	11.15	354	3.61	422	291	2.09	822	312	2.62	682	3.96	62.40	3.24
200307	301765	H	388	4.19	63	11.31				294	1.94	779						
200316	301641	C	178	1.58	166	13.64	237	1.66	915	175	0.65	1446	196	1.00	1260	2.67	25.58	6.09
200350	301532	C	366	5.08	70	11.15	400	4.25	546	289	2.65	992	327	3.20	835	4.46	81.85	4.23
200246	301540	R	368	5.83	58	10.77	269	1.52	1226	299	1.38	1414	282	1.42	1348	3.84	36.31	6.49
200028	301699	C	327	0.13	166	11.32	333	1.08	1322	361	0.45	1587	351	0.67	1494	3.61	12.93	5.62
200275	301685	C	334	5.31	103	11.50	346	1.91	625	293	2.14	565	311	2.05	585	3.20	39.58	2.07
200193	301701	C	98	0.12	173	13.05	285	1.16	1976	271	0.36	2317	276	0.64	2197	2.84	12.35	8.62
200193	301702	H	99	0.10	167	12.74				281	0.34	2298						
200235	301698	C	135	1.21	214	13.35	257	1.19	1523	203	0.60	1963	222	0.80	1808	2.27	15.44	6.64
200235	301699	H	159	1.66	164	13.75				210	0.56	1888						
200293	301757	C	442	3.69	159	12.34	355	1.71	1458	321	1.08	1646	333	1.30	1580	3.85	28.25	6.59
200357	301686	C	433	7.73	55	9.73	592	2.02	1073	548	1.56	1252	563	1.72	1189	5.86	33.65	4.29
200370	301758	C	115	0.27	301	13.83	271	1.97	1310	189	0.68	1572	216	1.13	1480	2.22	21.81	5.59
200370	301759	H	96	0.19	318	13.85				168	0.39	1772						
200382	301847	C	304	3.77	142	12.47	283	1.42	2305	255	1.16	2422	264	1.32	2381	3.05	28.68	9.35
200386	301763	C	734	5.84	69	11.01	554	2.37	1044	456	1.69	1169	490	1.92	1125	4.53	33.37	3.97
200417	301762	C	149	1.49	202	13.65	242	1.21	2058	185	0.84	2322	205	0.96	2229	2.10	14.53	8.85
200234	301692	R	991	6.13	144	11.47	320	1.00	1097	308	0.36	1323	312	0.58	1243	3.20	11.19	4.46
200263	301547	C	185	0.55	242	10.05	306	1.50	1473	240	0.43	2148	263	0.83	1991	2.70	17.05	6.65
200274	301812	C	183	3.12	104	12.85	335	2.87	945	278	2.53	1111	297	2.64	1052	2.74	45.89	3.32
200290	301708	C	116	2.04	103	13.39	376	2.19	746	314	1.89	812	339	1.99	788	3.19	34.98	2.88

COLD AND HOT START TEST DATA — HOUSTON PHASE III — PROCESSING DATE- 3/27/72

CAR NO	RUN NO	S	-----CYCLE 7 IDLE----- HC	CO	NO	CO2	---CYCLES 1-4--- HC	CO	NO	---CYCLES 6-7--- HC	CO	NO	---COMPOSITE---- HC	CO	NO	--MASS EQUIVALENT-- HC	CO	NOXC
230122	301700	C	183	4.46	89	11.94	360	3.51	913	285	3.87	335	319	3.75	327	2.87	69.18	1.19
230324	301779	C	449	8.57	79	9.65	722	3.42	344	515	3.60	379	587	3.53	371	5.43	61.35	1.27
230327	301767	C	98	9.01	79	11.66	273	3.77	994	186	3.13	687	216	3.35	640	2.22	64.69	2.47
230339	301621	C	152	2.51	113	10.38	293	1.26	1897	149	0.65	2468	211	0.86	2268	2.17	16.60	8.02
230375	301430	C	221	4.43	46	9.11	771	4.84	198	511	3.95	322	602	4.45	275	5.57	80.82	0.87
230790	301715	R	135	1.52	102	12.51	347	2.31	922	317	1.87	960	327	2.02	898	3.02	39.11	3.29
230001	301663	C	775	8.83	35	8.79	629	1.72	2031	616	1.85	2121	620	1.80	2089	7.86	42.87	9.31
230024	301343	C	171	5.43	95	12.00	144	1.37	2150	150	1.08	2681	147	1.18	2495	1.88	28.10	9.76
230029	301392	C	67	1.25	103	13.98	138	1.63	1305	108	0.82	1537	114	1.10	1455	1.44	25.34	5.43
230104	301687	C	294	6.94	64	10.45	391	2.79	1219	319	2.56	1396	322	2.63	1334	3.72	57.15	5.54
230121	301873	C	378	7.31	87	10.24	391	1.91	1047	356	3.26	711	364	2.78	824	4.61	66.22	4.10
230134	301742	C	589	7.63	33	9.66	431	1.89	1416	471	1.44	1505	457	1.72	1473	5.79	40.96	7.27
230211	301641	C	980	4.61	95	11.80	353	1.14	859	306	0.98	932	322	1.03	906	3.72	22.38	4.36
230226	301720	C	299	3.25	243	13.63	331	1.33	978	261	0.85	1068	285	1.31	1036	3.30	21.95	4.54
230211	301665	R	374	4.43	98	11.84	419	0.95	902	331	0.97	970	362	0.96	966	4.18	20.86	4.02
230057	301727	C	256	5.38	75	11.45	279	1.82	726	209	1.03	956	233	1.30	875	2.69	28.25	3.68
230213	301895	C	375	7.37	80	10.17	386	2.64	1246	290	1.87	1683	323	2.13	1530	4.40	54.48	8.61
230231	301639	C	432	9.58	36	8.53	751	3.09	463	719	2.95	533	730	2.99	508	7.60	58.50	1.92
230236	301551	C	404	6.30	91	10.40	376	2.88	703	268	1.76	800	305	2.15	766	3.86	51.21	3.33
230249	301734	C	380	7.77	85	9.95	344	9.29	413	321	1.34	1695	328	2.72	1246	4.16	64.79	5.90
230260	301662	C	752	4.83	87	11.09	443	1.27	1569	411	1.06	1500	421	1.13	1524	4.88	24.55	6.19
230297	301826	C	304	5.14	123	11.55	302	1.42	1821	257	1.42	2068	272	1.42	1981	3.70	36.31	10.10
230291	301725	C	404	8.18	61	9.80	367	2.74	922	349	1.85	1412	355	2.16	1240	4.83	55.24	6.20
230291	301726	H	362	7.47	66	10.34				322	1.70	1337						
230308	301674	C	219	5.59	43	11.04	345	1.78	1336	303	1.51	1707	317	1.60	1577	3.66	34.76	6.49
230311	301664	C	225	5.55	42	11.35	193	2.01	508	197	1.96	516	194	1.97	513	2.25	42.81	2.14
230311	301670	R	259	6.57	67	10.58	231	2.32	475	215	1.58	656	220	1.83	592	2.54	39.77	2.58
230061	301574	C	346	5.84	74	10.93	371	3.03	855	266	1.27	1411	302	1.88	1216	3.83	44.78	5.38
230095	301752	C	200	2.22	111	13.36	271	1.13	1155	225	0.99	1384	241	1.03	1303	3.04	24.53	6.38
230139	301739	C	177	1.91	90	13.42	297	1.29	1013	229	0.92	1182	252	1.04	1122	3.43	26.60	5.47
230153	301509	C	378	7.31	49	10.23	336	2.22	1582	280	1.41	1732	299	1.69	1679	4.07	43.22	7.73
230170	301762	C	178	1.67	128	13.68	261	2.52	731	211	1.85	980	228	2.08	892	3.10	53.20	4.37
230170	301763	H	190	1.22	152	14.12				204	1.45	1111						
230175	301543	C	233	5.28	93	10.03	192	1.38	705	171	1.80	732	178	1.65	722	2.42	42.20	3.26
230190	301700	C	213	3.21	77	12.73	267	0.91	1382	209	0.83	1490	228	0.85	1452	3.10	21.74	7.07
230191	301738	C	329	7.56	51	10.04	244	3.82	321	236	2.57	675	245	3.00	551	3.10	71.46	2.49
230195	301713	C	376	7.31	43	10.19	359	2.09	1218	324	2.20	1546	335	2.16	1431	3.87	46.93	6.51
230206	301753	C	453	4.70	50	10.57	362	1.21	517	369	1.37	647	365	1.31	601	4.07	33.50	2.90
230153	301517	R	403	7.28	47	10.21	349	2.16	1185	298	1.33	1654	315	1.62	1489	4.29	41.43	6.82
230360	301547	C	327	8.01	43	9.95	721	5.08	150	210	3.73	238	388	4.20	207	5.29	107.43	0.90
230096	301935	C	359	7.71	52	9.90	420	2.71	624	222	2.58	634	291	2.62	630	4.18	70.74	3.98
230101	301546	C	535	8.16	77	11.23	408	4.81	285	367	3.30	575	380	3.82	473	5.47	103.15	2.23
230254	301705	C	674	0.33	162	11.91	744	0.40	824	717	0.38	910	733	0.38	879	10.54	10.26	4.73
230394	301735	C	402	8.96	45	9.12	328	5.95	159	277	3.83	364	295	4.57	292	6.24	123.43	1.62
230407	301636	C	342	7.92	76	10.09	271	3.39	639	232	2.48	1015	245	2.79	883	3.91	75.33	4.43
230414	301863	C	482	9.91	39	8.73	393	4.19	594	302	3.11	988	333	3.48	850	4.78	93.97	4.23
230060	301555	R	291	7.57	75	10.24	451	4.90	213	181	3.77	256	275	4.16	240	3.74	106.41	1.19
230268	301721	C	341	5.70	68	10.92	366	2.50	830	263	1.30	1288	299	1.52	1127	3.45	33.03	4.93
230328	301542	C	268	3.37	134	12.65	432	3.73	611	227	1.93	901	298	2.55	799	3.44	55.41	3.01
230374	301706	C	117	2.11	120	13.20	346	2.01	985	234	0.29	1549	273	0.89	1351	3.15	19.33	5.84
230380	301624	C	132	0.11	90	11.22	250	0.80	1529	155	0.18	2133	188	0.39	1921	2.16	8.47	7.41
230389	301567	C	178	0.15	289	13.64	313	3.35	1183	189	0.26	2110	231	1.34	1785	2.67	29.11	6.34
230398	301566	H	198	0.66	338	13.79				195	0.40	2241						
230399	301613	C	241	0.30	134	13.33	482	3.09	1255	429	1.13	1790	447	1.81	1602	5.17	39.33	6.97
230400	301714	C	321	5.40	84	11.50	239	1.26	1022	229	0.79	1134	232	0.95	1094	2.68	20.64	4.97
230415	301927	C	201	2.78	66	9.70	273	2.78	409	176	1.09	596	209	1.68	530	2.41	36.50	2.43
230416	301925	C	394	7.20	55	9.25	579	5.07	279	346	4.16	430	427	4.49	377	4.94	97.58	1.69
230418	301619	C	292	3.54	96	12.57	313	2.64	737	276	1.78	1066	289	2.08	950	3.34	45.19	4.11
230328	301550	R	266	2.81	124	13.13	484	3.85	589	232	1.88	964	389	2.56	832	4.50	59.63	3.33
230221	301719	C	520	9.18	43	8.86	524	4.81	396	295	2.71	627	374	3.44	546	4.32	74.75	2.46
230290	301749	C	192	3.57	44	12.04	179	1.65	649	151	0.60	885	160	0.96	802	1.85	20.86	3.46
230289	301750	H	184	3.46	83	12.24				159	0.72	994						
230297	301711	C	138	1.58	149	13.47	354	2.05	435	150	1.40	493	221	1.75	472	2.56	38.03	2.04
230320	301733	C	204	3.23	89	12.44	248	2.25	1538	180	0.79	2046	203	1.30	1868	2.34	28.25	8.23
230334	301898	C	258	5.99	73	10.35	279	3.42	629	216	1.69	1028	238	2.29	888	2.75	49.76	3.33
230334	301897	H	264	5.84	69	10.84				233	1.75	1130						
230338	301884	C	111	0.98	117	9.47	182	0.57	1236	156	0.89	1017	165	0.77	1093	1.90	16.73	4.82
230353	301734	C	226	5.85	74	10.64	226	1.88	712	167	1.20	1143	187	1.43	992	2.16	31.07	4.37
230362	301780	C	424	4.39	75	12.00	344	2.21	494	282	0.88	663	303	1.34	603	3.50	29.11	2.75
230349	301518	C	292	3.84	44	12.53	332	3.19	900	227	0.68	1455	263	1.55	1280	3.33	36.92	5.45
230391	301751	C	87	0.66	121	8.42	195	1.74	1290	142	0.24	2096	160	0.76	1810	1.85	16.51	7.68
230369	301526	R	285	4.24	84	12.19	324	3.32	840	224	0.77	1289	259	1.66	1131	3.28	39.54	5.27
230010	301404	C	901	4.60	59	11.14	824	2.70	710	771	1.47	941	793	1.90	860	9.14	41.28	3.14
230010	301402	H	928	3.82	82	10.35				782	1.39	1056						
230030	301409	C	716	5.73	65	9.93	592	2.74	1125	588	1.74	1288	589	2.09	1233	7.47	49.78	5.07
230049	301513	C	327	5.92	74	11.00	468	3.15	973	356	1.89	1245	394	2.33	1149	4.56	50.61	4.21
230079	301424	C	872	2.47	88	17.30	1056	1.52	1115	1148	1.08	1282	1124	1.23	1223	14.31	29.29	5.58
230046	301432	C	185	1.91	179	13.84	282	2.20	1287	202	1.13	1537	230	1.50	1449	2.66	32.59	5.82
230134	301494	C	339	4.78	102	13.59	432	3.87	937	321	1.47	1705	359	2.56	1436	4.15	55.63	5.78
230126	301499	C	296	3.39	138	12.63	405	2.71	1711	288	1.47	1956	324	1.90	1879	3.79	41.29	7.85

COLD AND HOT START TEST DATA — HOUSTON PHASE III — PROCESSING DATE- 03/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLES 1-6 HC	CYCLES 1-6 CO	CYCLES 1-6 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
230149	301449	C	246	2.78	142 13.91	242	2.41	1077	215	1.29	1336	238	1.68	1245	2.75	38.50	9.40
230171	301916	C	960	4.49	54 9.83	455	1.56	1155	418	1.37	1248	433	1.43	1219	4.97	31.07	9.97
230040	301523	R	337	6.18	64 10.90	404	2.90	895	348	2.00	1235	364	2.31	1119	4.25	57.20	4.65
230009	301842	C	381	6.50	49 10.11	460	3.30	625	391	2.91	602	419	3.04	610	5.26	72.41	2.92
230009	301846	H	325	4.88	77 11.21				389	2.78	786						
230036	301424	C	2151	9.41	70 8.95	722	5.43	513	861	2.84	1020	812	3.74	842	9.39	81.28	3.35
230092	301417	C	1210	5.79	79 10.76	490	5.39	382	425	4.76	520	444	5.05	471	5.63	120.30	1.99
230097	301475	C	408	6.93	56 10.19	619	4.27	271	437	2.12	1159	500	3.57	868	6.81	91.32	3.60
230129	301450	C	364	7.14	78 10.16	458	4.47	578	330	2.91	828	374	3.49	760	4.74	82.18	3.51
200176	301455	C	219	4.16	98 11.53	329	3.04	708	239	1.02	1244	270	1.72	1056	3.12	37.37	4.28
200176	301463	H	205	3.36	95 11.49				244	1.02	1189						
230207	301428	C	258	6.33	86 10.45	282	3.19	530	234	3.00	634	253	3.06	597	3.17	72.89	2.79
230222	301903	C	316	4.74	98 11.79	291	1.95	659	270	1.84	857	277	1.87	787	3.20	40.63	3.30
200256	301423	C	207	1.20	113 12.94	359	3.34	541	233	0.66	1072	277	1.66	886	3.91	39.54	4.03
230009	301845	H	361	6.22	69 10.45	435	3.12	686	384	2.61	756	401	2.78	731	5.08	66.22	3.95
230004	301402	C	389	8.66	47 8.66	332	3.69	1094	320	3.01	1222	324	3.24	1177	4.11	77.18	4.84
230005	301394	C	117	5.96	100 10.69	110	2.06	1790	94	2.04	1981	99	2.04	1914	1.25	48.59	7.61
200077	301422	C	263	2.57	115 13.58	257	2.02	869	193	0.55	1085	215	1.06	1009	2.72	25.24	4.36
200078	301434	C	368	8.11	59 9.18	422	5.92	644	292	2.38	1026	337	3.61	1412	4.27	85.99	6.13
200102	301416	C	254	7.78	77 9.82	297	3.31	814	233	1.94	1051	259	2.41	968	2.95	52.37	3.68
200140	301660	C	1623	6.92	54 9.02	577	3.74	770	701	1.86	942	657	2.51	881	8.32	59.79	4.56
230199	301675	C	682	8.82	40 9.15	435	1.59	2305	354	1.35	2578	382	1.63	2482	4.42	31.07	10.48
200253	301680	C	261	4.37	105 11.83	349	3.42	912	256	1.48	1522	287	2.15	1308	3.64	51.21	5.90
200255	301420	C	333	6.46	62 10.50	333	2.23	995	357	1.56	1220	348	1.79	1141	4.74	65.78	5.30
200278	301492	C	198	1.59	100 13.21	343	3.08	826	294	1.57	1155	311	2.09	1039	3.94	49.78	3.87
200378	301684	C	349	6.88	54 10.31	445	4.34	688	287	1.80	1433	342	2.68	1172	4.33	63.84	5.43
200140	301666	R	1576	6.76	72 9.25	694	4.09	502	735	1.89	1043	706	2.65	853	8.95	63.12	3.96
200223	301439	C	158	0.11	169 13.37	282	2.30	894	230	0.60	1186	248	1.19	1083	3.14	28.34	4.52
200283	301461	C	299	5.13	69 10.68	499	3.43	356	451	1.98	480	467	2.48	436	5.92	59.07	1.89
230319	301464	C	420	6.63	35 7.42	470	3.43	658	453	2.34	851	458	2.72	783	5.81	64.79	3.65
200333	301436	C	355	4.87	88 10.43	700	3.72	357	1404	2.58	469	1157	2.97	429	14.68	70.74	1.68
200342	301441	C	170	2.15	216 11.40	237	2.26	851	174	1.10	1015	196	1.50	957	2.48	35.73	4.37
230344	301473	C	396	8.60	39 8.41	389	3.70	356	325	2.74	463	350	3.07	425	4.43	73.12	1.98
200344	301479	H	412	7.74	50 8.46				389	2.88	426						
230345	301544	C	6508	8.07	100 3.73	2046	9.92	358	3134	5.38	525	2766	5.56	466	35.10	132.45	1.98
230354	301539	C	301	3.77	89 12.60	269	2.55	546	240	1.73	489	249	2.01	508	3.40	51.41	2.65
230368	301447	C	360	9.29	42 8.68	335	3.04	443	288	2.50	730	304	2.68	636	4.14	68.55	3.10
230345	301548	R	5932	9.18	103 6.51	1604	5.93	349	2142	5.52	486	1951	5.66	438	24.78	134.83	1.86
200089	301433	C	317	6.73	85 10.48	363	2.82	1381	260	1.88	1876	296	2.20	1702	3.75	52.60	7.65
200089	301905	C	385	7.79	67 10.00	318	2.55	1150	287	2.51	1396	297	2.52	1283	3.76	60.02	6.36
200115	301694	C	287	0.10	123 12.45	294	0.89	979	247	0.26	993	263	0.48	988	3.04	10.43	4.37
200150	301678	C	243	6.47	65 10.62	256	2.54	710	192	2.12	894	214	2.26	829	2.47	49.11	3.37
200148	301737	C	196	1.44	189 13.64	247	1.41	1381	198	0.72	1865	215	0.96	1695	2.72	22.46	8.36
200183	301440	C	339	6.12	95 10.80	331	2.96	1062	282	2.22	1330	299	2.47	1236	3.79	58.84	5.66
200197	301453	C	211	3.26	147 14.37	306	2.15	958	175	1.15	1251	220	1.49	1148	2.79	35.49	4.97
230196	301465	C	348	6.73	83 10.30	310	2.37	976	263	1.70	1410	279	1.93	1258	3.54	45.98	5.63
200115	301697	R	224	0.10	147 12.83	257	1.09	798	228	0.26	1201	238	0.55	1059	2.76	11.95	4.38
200019	301406	C	220	3.25	111 13.34	210	1.95	582	148	0.89	916	169	1.26	799	2.14	30.01	3.13
230059	301442	C	239	6.04	102 11.14	181	3.07	378	143	1.81	693	156	2.25	582	2.12	57.55	2.99
230090	301462	C	182	1.57	146 13.20	256	1.97	960	217	0.90	1485	230	1.27	1301	3.13	32.48	6.04
230094	301489	C	266	4.80	52 6.95	219	1.73	532	191	2.13	524	200	1.98	526	2.53	47.16	2.05
200103	301834	C	171	3.21	134 12.70	229	2.44	485	164	1.27	713	186	1.67	633	2.33	42.72	2.91
230117	301404	C	156	0.54	263 13.77	238	0.69	1746	214	0.55	2128	222	0.59	1994	3.02	15.08	8.80
200120	301479	C	287	5.62	89 11.14	274	1.97	1173	237	1.92	1322	249	1.93	1269	3.38	49.36	6.27
230144	301867	C	291	4.19	102 12.08	279	1.64	1220	239	1.46	1491	252	1.52	1396	3.43	39.87	6.88
230147	301444	C	297	5.99	100 12.00	293	3.31	770	239	1.87	1307	257	2.37	1119	3.50	60.62	5.19
230197	301773	C	263	4.47	110 12.02	262	1.99	1196	229	1.64	1566	239	1.76	1436	3.25	45.01	7.34
230247	301437	C	306	4.62	109 11.91	330	3.14	756	248	1.72	1259	276	2.21	1082	3.90	52.64	4.43
200247	301437	H	286	3.91	113 12.43				234	1.35	1257						
230197	301777	R	220	4.39	97 12.11	270	2.08	1065	230	1.79	1528	243	1.89	1365	3.30	48.34	5.85
230174	301552	C	340	7.98	59 9.72	342	2.66	1278	298	2.32	1473	313	2.43	1404	4.26	62.15	6.73
230200	301568	C	502	9.24	38 8.90	358	4.99	759	326	3.39	1343	336	3.94	1138	4.57	100.78	5.20
200227	301472	C	378	5.89	77 10.98	348	4.29	565	292	3.64	654	311	3.86	622	4.23	98.73	3.14
230312	301834	C	382	8.77	35 9.14	249	5.53	117	252	4.98	125	250	5.17	122	3.40	132.24	0.61
230367	301597	C	333	5.05	47 9.50	356	2.95	895	338	1.91	1112	344	2.27	1036	4.68	58.06	4.89
230436	301593	C	447	8.94	40 8.43	392	5.32	895	373	2.49	1503	379	2.78	1290	5.16	71.11	6.20
230409	301519	C	274	5.61	64 11.07	308	2.15	1236	272	1.15	1729	285	1.49	1556	4.09	40.23	7.41
230413	301868	C	380	5.40	58 11.15	360	2.21	1385	353	1.63	1766	355	1.83	1632	4.83	46.81	8.29
230417	301865	C	920	6.91	26 4.30	674	5.67	438	732	6.93	226	711	6.48	330	9.68	185.76	1.45
230404	301579	R	273	5.48	67 11.25	289	1.91	1180	261	1.34	1466	270	1.93	1365	3.88	41.31	7.21
230027	301437	C	308	6.38	73 10.77	394	4.15	684	297	2.64	967	330	3.16	867	4.18	75.27	3.45
230041	301508	C	597	1.02	389 12.50	268	0.62	1458	402	0.48	1573	394	0.52	1602	4.48	12.38	6.71
230043	301502	C	167	4.38	95 12.12	339	1.72	904	174	1.29	878	230	2.14	747	3.13	54.73	3.34
230092	302278	C	277	7.03	71 10.16	399	3.49	468	234	2.45	911	291	2.81	825	3.69	64.93	3.11
230214	301637	C	179	1.54	83 13.25	393	2.59	901	319	1.35	1122	345	1.78	1044	4.37	42.40	4.90
230225	301516	C	554	6.92	51 10.15	340	3.01	461	337	2.46	543	385	2.65	514	4.62	63.12	2.19
230232	301732	C	440	9.67	35 8.62	367	2.94	921	343	3.22	958	351	3.12	945	4.06	67.80	4.16
230244	301741	C	248	7.00	46 10.25	345	3.16	689	297	2.39	812	288	2.65	764	3.33	57.59	3.45
230249	301427	C	293	6.11	59 9.18	334	3.35	576	238	2.72	919	273	3.15	793	3.53	75.93	3.52
230272	301712	C	240	4.92	69 11.68	390	3.34	633	234	1.99	835	285	2.20	764	3.60	52.60	3.71

COLD AND HOT START TEST DATA — HOUSTON, PHASE III — PROCESSING DATE- 3/27/72

CAR NO	RUN NO	S	CYCLE 7 IDLE HC	CYCLE 7 IDLE CO	CYCLE 7 IDLE NO	CYCLE 7 IDLE CO2	CYCLES 1-4 HC	CYCLES 1-4 CO	CYCLES 1-4 NO	CYCLES 6-7 HC	CYCLES 6-7 CO	CYCLES 6-7 NO	COMPOSITE HC	COMPOSITE CO	COMPOSITE NO	MASS EQUIVALENT HC	MASS EQUIVALENT CO	MASS EQUIVALENT NOXC
200273	301784	C	220	9.52	63	9.60	292	2.60	535	211	2.16	616	235	2.31	587	3.20	99.08	3.01
200041	301519	H	436	1.00	349	12.60	385	0.75	1965	499	0.45	1411	426	0.54	1497	5.40	12.85	8.41
200093	301667	C	609	9.31	43	7.99	463	5.83	221	900	5.82	248	487	5.75	239	6.63	147.09	1.17
200145	301699	C	184	3.59	139	12.34	170	0.79	1480	139	0.79	1660	149	0.78	1597	2.02	19.94	7.52
200277	301697	C	309	2.38	152	12.40	224	1.73	931	232	0.94	1132	209	1.21	1061	2.83	30.95	4.26
200305	301500	C	199	4.09	67	12.13	219	2.84	397	111	1.00	648	144	1.64	960	2.01	41.95	2.72
200405	301471	C	822	8.94	65	9.29	644	4.92	415	459	4.99	307	491	4.82	344	6.16	123.29	1.70
200420	301922	C	331	3.48	172	12.38	227	1.63	979	205	1.06	1214	212	1.25	1131	2.88	31.97	5.65
200422	301923	A	293	3.10	144	12.30	227	1.73	860	200	1.23	1011	209	1.40	958	2.84	35.81	4.79
200053	301760	C	376	7.18	54	10.23	290	2.59	588	315	1.80	890	306	2.07	784	4.17	92.94	4.19
200365	301469	C	198	6.18	96	10.99	279	4.37	632	199	2.93	741	226	3.43	702	3.08	87.73	3.49
200069	301470	H	202	6.13	90	10.90				206	2.78	977						
200132	301469	C	357	9.05	47	9.07	320	3.83	749	284	3.19	845	296	3.41	811	4.02	87.22	3.94
200303	301693	C	214	8.68	65	8.64	226	3.94	558	168	3.94	679	188	3.94	636	2.38	93.85	2.81
200319	301474	C	207	6.43	20	10.90	355	4.11	461	224	2.48	802	269	3.05	682	3.42	72.65	3.18
200331	301617	C	185	2.54	85	9.25	254	3.28	1028	211	2.04	1181	226	2.47	1127	3.07	63.18	5.95
200349	301644	C	322	8.10	48	9.39	299	3.42	486	201	2.40	595	234	2.75	556	3.18	70.34	2.60
200360	301718	C	247	6.98	81	10.43	303	4.87	460	247	3.62	658	266	4.05	588	3.38	96.47	2.79
200379	301659	C	223	5.32	101	11.54	251	3.15	931	196	2.83	1010	215	2.94	982	2.72	70.03	4.87
200387	301480	C	245	6.60	64	10.79	282	3.84	748	218	2.18	1047	240	2.76	942	3.04	69.74	4.44
200390	301492	C	284	6.43	96	10.60	304	3.41	906	244	2.98	963	264	3.13	930	3.33	74.96	3.77
200393	301494	B	273	6.70	81	10.82	298	2.96	1110	242	2.19	1300	258	2.45	1233	3.26	58.35	5.04
200133	301691	C	178	2.14	128	13.65	285	2.95	836	204	1.45	1065	232	1.97	984	3.15	50.38	4.67
200194	301490	C	210	3.04	29	10.98	293	3.11	744	209	1.57	972	234	2.10	892	3.19	53.71	3.73
200196	301910	C	162	3.30	122	12.52	226	3.13	922	163	1.16	1437	185	1.84	1256	2.51	47.06	6.06
200102	301649	C	-98	6.71	63	8.34	-98	1.52	1067	-98	1.52	1063	-98	1.52	1064	-0.99	38.87	5.41
200217	301477	C	219	2.74	140	13.03	304	3.00	1289	241	1.02	1855	263	1.71	1656	3.57	43.73	8.24
200252	301491	C	390	9.00	19	9.19	317	3.87	791	316	2.46	874	316	2.95	844	4.31	79.45	4.36
200267	301506	C	207	4.09	110	11.98	293	2.66	1174	197	1.15	1631	230	1.67	1471	3.13	42.71	7.09
200288	301635	C	232	5.30	92	11.13	262	3.35	952	223	2.64	481	236	2.95	505	3.20	75.45	2.53
200288	301642	R	221	5.62	88	11.00	292	3.63	685	217	2.34	839	243	2.79	785	3.30	71.36	3.96
200142	301618	C	97	2.05	66	11.19	209	1.92	990	157	1.17	1111	175	1.42	1068	2.51	38.34	5.75
200134	301682	C	102	3.09	59	11.02	193	2.27	1063	139	1.18	1230	158	1.56	1171	2.27	42.12	5.99
200289	301779	C	64	2.14	77	11.42	165	2.14	1021	113	1.05	1185	131	1.43	1127	1.88	38.61	5.22
200313	301899	C	59	2.75	64	12.01	167	1.44	1272	118	1.46	1186	135	1.45	1216	1.94	39.14	6.07
200324	301766	C	80	1.99	70	11.17	183	2.62	957	115	1.30	1163	131	1.76	1090	1.88	47.52	5.89
200330	301839	C	179	4.38	52	10.74	458	4.81	525	217	2.73	832	371	3.45	724	5.33	93.15	3.81
200340	301772	C	161	4.10	67	10.65	204	2.11	830	97	1.80	631	134	1.90	700	1.91	51.30	3.78
200346	301716	C	59	1.34	96	11.44	162	1.98	1079	113	1.20	1244	130	1.46	1187	1.87	39.42	6.34
200341	301756	C	162	3.58	66	11.36	159	2.39	430	121	1.70	563	134	1.94	516	1.91	52.38	2.66
200366	301723	R	72	1.31	70	11.26	163	1.78	1192	124	0.87	1304	137	1.18	1243	1.96	31.85	6.64
200016	301799	C	166	2.34	66	8.15	492	2.76	1411	424	1.68	1639	486	2.05	1559	3.13	24.82	3.05
200031	301707	C	5171	6.67	59	4.35	2600	6.03	262	2737	6.27	207	2688	6.18	226	17.33	74.88	0.54
200046	301740	C	655	7.44	33	8.51	1340	7.44	87	887	7.21	63	1044	7.29	71	6.73	88.34	0.16
200049	301671	C	352	4.25	58	8.02	929	2.24	1198	461	2.38	963	484	2.33	1041	3.12	28.23	2.42
200066	301536	C	388	3.38	93	11.42	930	2.99	1017	450	2.38	973	479	2.39	988	3.08	31.38	2.17
200067	301535	C	285	3.34	95	12.25	422	1.97	1450	361	2.07	1109	382	2.03	1228	2.46	24.59	2.70
200099	3018[illegible]A	C	1206	1.91	48	5.22	2210	1.91	1445	1928	2.46	1016	2024	2.26	1166	13.06	27.38	2.71
200198	3016[illegible]	C	281	3.99	68	10.60	723	2.89	933	618	2.18	968	654	2.42	955	4.22	29.32	2.10
200421	301717	C	131	1.62	47	6.84	383	1.56	1375	368	1.39	1219	372	1.44	1273	2.40	17.44	3.09
200067	301541	R	269	3.05	89	12.24	400	1.73	1613	345	2.18	1076	364	2.02	1263	2.34	24.47	2.68
200152	301530	C	3549	0.68	132	9.89	2493	2.82	433	2437	3.23	396	2457	3.08	408	19.47	45.88	1.20
270229	301783	C	461	2.97	49	7.75	395	1.81	1014	296	1.76	963	313	1.77	967	2.46	26.37	2.89
270240	301514	C	204	3.78	67	10.50	442	1.45	1641	274	1.24	1472	332	1.31	1531	2.63	19.51	3.85
200241	301761	C	261	1.74	69	13.05	371	1.19	1004	213	0.71	1043	268	0.87	1029	2.12	12.96	2.92
270299	301755	C	231	1.30	69	12.94	346	1.00	1290	253	0.54	1221	285	0.70	1245	2.25	10.42	3.74
270240	301522	R	323	3.61	72	10.64	420	1.82	1578	285	1.25	1542	402	1.44	1594	3.19	21.45	4.34

APPENDIX C

MEAN AND STANDARD DEVIATION TABLES

1. Legend and Interpretation of Statistical Tables.

2. Tables:

C-1	Kansas City	Phase I
C-2	Kansas City	Phase II
C-3	Kansas City	Phase III
C-4	Houston	Phase I
C-5	Houston	Phase II
C-6	Houston	Phase III

LEGEND AND INTERPRETATION OF STATISTICAL TABLES

Key Words	Description
CYCLES 6-7	This represents the corrected and weighted emission results of the entire Federal Cold Start Emission Test as measured in parts per million (volume) for hydrocarbons and nitrogen oxides as dry NO and in percent (volume) for carbon monoxide.
COMPOSITE	This represents the corrected and weighted emission results of the entire Federal Cold Start Emission Test as measured in parts per million (volume) for hydrocarbons and nitrogen oxides as dry NO and in percent (volume) for carbon monoxide.
MASS EQUIVALENT	This represents the composite emission results of the entire Federal Cold Start Emission Test expressed in grams per mile for hydrocarbons, carbon monoxide, and nitrogen oxides as dry NO, corrected for humidity.
N	Number of cars tested in each category.
MEAN	Indicates mean emission results for each displacement class.
STD	Indicates standard deviations about the mean emission results for each displacement class.
MFG. CLASS	Code for each displacement class. See accompanying table for explanation of code.
COLD STARTS	Statistical information relevant to all vehicles that were given a Federal Cold Start Emission Test.

LEGEND

(cont'd)

Key Words	Description
COLD W/HOT STARTS	Statistical results of cycle 6-7 data from Federal Cold Start test-applicable to only those vehicles that underwent additional Hot Start tests.
HOT STARTS	Statistical results of additional Hot Start tests.
DIFFERENCE (HOT-COLD)	Statistical results of the differences between additional Hot Start tests and cycle 6-7 data from Federal Cold Start test. "MEAN" refers to the mean of the differences. "STD" refers to the standard deviation of the individual differences about the mean of the differences.
MEAN ODOMETER	Mean odometer reading for the number of vehicles in category.
PERCENT FAIL	Indicates percent of vehicles in a category exceeding Federal exhaust emission standards of 275 PPM and 1.5% CO (410 PPM and 2.3% CO for VW's).

TABLE OF DISPLACEMENT CLASS CODES

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL
1	A01	American Motors	232	A & M	6	1
2	C11	Dodge, Plym	225	A & M	6	1
3	C12	Dodge, Plym	318	A & M	8	2
4	C13	Chry, Plym	383	A Only	8	2
5	C14	Dodge, Chry, Plym	440	A Only	8	4
6	F31	Ford	200	A & M	6	1
7	F32	Ford (1970 Maverick)	200	A & M	6	1
8	F33	Ford, Merc	302	A & M	8	2
9	F34	Ford, Merc 1969 only	351	A & M	8	2
10	F35	Ford, Merc	390	A Only	8	2
11	F36	Ford, Merc	429	A Only	8	4
12	G51	Chev	230	A Only	6	1
13	G52	Chev	250	A Only	6	1
14	G53	Chev	307	A Only	8	2
15	G54	Chev 1968 Only	327	A Only	8	4
16	G55	Chev	350	A Only	8	4
17	G56	Chev	396	A Only	8	4
18	G61	Pont	350	A Only	8	2
19	G62	Pont	400	A Only	8	2
20	G63	Pont	428	A Only	8	4
21	G66	Olds	350	A Only	8	2
22	G67	Olds	455	A Only	8	4
23	G71	Buick	350	A Only	8	4
24	G72	Buick	430	A Only	8	4
25	G76	Cadillac	472	A Only	8	4
26	V81	Volkswagen	91	A & M	4	1
27	V82	Volkswagen	97	A & M	4	FI*

* Fuel Injection

TABLE C-1

Kansas City

Phase I

KANSAS CITY, PHASE 1

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
A01																					
COLD STARTS					MEAN ODOMETER = 15918						PERCENT FAIL = 93										
	15	309	126	15	1.74	1.18	15	1733	646	15	346	146	15	1.86	1.12	15	1847	616	15	3.5	1.3	15	34.40	19.30	15	4.96	1.89
COLD W/ HOT STARTS					MEAN ODOMETER = 16736						PERCENT FAIL = 100										
	5	342	205	5	1.95	0.22	5	2118	318	5	388	236	5	2.04	0.14	5	2017	350	5	3.8	2.1	5	38.61	5.17	5	5.23	1.42
HOT STARTS																					
	5	236	89	5	1.56	0.44	5	1773	346												
DIFFERENCE (HOT - COLD)																					
	5	-105	144	5	-0.39	0.52	5	-344	538												
C11																					
COLD STARTS					MEAN ODOMETER = 16703						PERCENT FAIL = 73										
	15	225	51	15	1.18	0.64	15	2216	354	15	270	69	15	1.72	0.64	15	2007	290	15	2.8	0.7	15	33.29	12.23	15	5.49	0.93
COLD W/ HOT STARTS					MEAN ODOMETER = 20877						PERCENT FAIL = 71										
	7	222	38	7	1.12	0.38	7	2245	373	7	269	61	7	1.72	0.63	7	2043	321	7	2.9	0.8	7	34.42	12.92	7	5.76	1.09
HOT STARTS																					
	7	208	31	7	1.13	0.37	7	2048	382												
DIFFERENCE (HOT - COLD)																					
	7	-13	23	7	0.01	0.12	7	-196	215												
C12																					
COLD STARTS					MEAN ODOMETER = 23205						PERCENT FAIL = 72										
	18	238	60	18	1.31	0.50	18	1934	372	18	275	92	18	1.66	0.58	18	1762	340	18	3.4	1.2	18	37.83	13.80	18	5.67	1.27
COLD W/ HOT STARTS					MEAN ODOMETER = 26336						PERCENT FAIL = 60										
	5	269	80	5	1.07	0.49	5	1995	409	5	339	146	5	1.60	0.82	5	1772	391	5	4.2	2.0	5	37.02	10.84	5	5.83	1.34
HOT STARTS																					
	5	267	147	5	0.84	0.28	5	1821	444												
DIFFERENCE (HOT - COLD)																					
	5	-1	100	5	-0.24	0.31	5	-173	454												
C13																					
COLD STARTS					MEAN ODOMETER = 23067						PERCENT FAIL = 78										
	18	368	427	18	1.82	0.98	17	1953	448	18	399	455	18	2.04	1.00	17	1749	400	18	5.4	6.2	18	51.49	25.68	17	6.15	1.47
COLD W/ HOT STARTS					MEAN ODOMETER = 13591						PERCENT FAIL = 100										
	4	249	36	4	2.29	0.85	4	1740	332	4	278	39	4	2.59	0.65	4	1611	351	4	3.8	0.6	4	66.13	16.42	4	5.80	1.55
HOT STARTS																					
	4	263	40	4	2.46	1.14	4	1295	348												
DIFFERENCE (HOT - COLD)																					
	4	13	49	4	0.17	0.78	4	-444	389												
C14																					
COLD STARTS					MEAN ODOMETER = 19755						PERCENT FAIL = 87										
	15	259	61	15	2.10	1.17	15	1380	607	15	285	62	15	2.47	1.23	15	1270	582	15	3.8	0.9	15	61.28	28.83	15	4.50	2.24
COLD W/ HOT STARTS					MEAN ODOMETER = 26824						PERCENT FAIL = 100										
	5	273	46	5	2.63	0.91	5	1100	595	5	303	40	5	3.05	0.85	5	984	548	5	4.0	0.7	5	74.98	18.34	5	3.37	2.02
HOT STARTS																					
	5	291	54	5	2.39	1.05	5	1250	640												
DIFFERENCE (HOT - COLD)																					
	5	17	28	5	-0.24	0.36	5	150	131												

KANSAS CITY, PHASE 1

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
CHRY																					
COLD STARTS					MEAN ODOMETER = 20906						PERCENT FAIL = 77										
	66	275	231	66	1.60	0.91	66	1350	527	66	310	247	66	1.96	0.93	65	1702	480	66	3.9	3.4	66	45.85	23.48	65	5.48	1.62
COLD W/ HOT STARTS					MEAN ODOMETER = 22205						PERCENT FAIL = 80										
	21	251	53	21	1.69	0.93	21	1816	609	21	295	82	21	2.17	0.92	21	1644	554	21	3.6	1.2	21	50.74	21.90	21	5.22	1.73
HOT STARTS																					
	21	252	81	21	1.62	1.00	21	1661	558												
DIFFERENCE (HOT - COLD)																					
	21	1	53	21	-0.08	0.41	21	-155	349												
F31																					
COLD STARTS					MEAN ODOMETER = 21216						PERCENT FAIL = 44										
	16	238	47	16	1.47	1.18	16	2071	651	16	260	46	16	1.66	1.15	16	1999	630	16	2.8	0.5	16	33.48	23.58	16	5.55	1.82
COLD W/ HOT STARTS					MEAN ODOMETER = 24092						PERCENT FAIL = 33										
	3	238	39	3	2.09	2.17	3	1652	953	3	261	36	3	2.42	2.02	3	1937	870	3	2.7	0.4	3	46.96	39.15	3	4.10	2.34
HOT STARTS																					
	3	244	21	3	2.12	2.06	3	1745	1169												
DIFFERENCE (HOT - COLD)																					
	3	5	41	3	0.03	0.16	3	293	224												
F32																					
COLD STARTS					MEAN ODOMETER = 8589						PERCENT FAIL = 31										
	16	230	47	16	0.87	0.50	16	2177	433	16	293	45	16	1.09	0.49	16	2064	475	16	2.5	0.5	16	19.87	8.33	16	5.27	1.45
COLD W/ HOT STARTS					MEAN ODOMETER = 9475						PERCENT FAIL = 60										
	5	242	72	5	1.05	0.54	5	1742	267	5	262	68	5	1.34	0.60	5	1626	273	5	2.5	0.7	5	24.01	9.87	5	4.03	0.73
HOT STARTS																					
	5	212	44	5	1.03	0.50	5	1748	423												
DIFFERENCE (HOT - COLD)																					
	5	-30	54	5	-0.02	0.19	5	-2	214												
F33																					
COLD STARTS					MEAN ODOMETER = 20315						PERCENT FAIL = 94										
	17	320	82	17	1.15	0.49	17	2099	506	17	344	79	17	1.33	0.44	17	1968	464	17	4.2	1.1	17	30.55	10.47	17	6.41	1.43
COLD W/ HOT STARTS					MEAN ODOMETER = 23139						PERCENT FAIL = 87										
	8	309	80	8	1.08	0.61	8	2077	423	8	334	75	8	1.19	0.52	8	1966	378	8	4.1	1.0	8	27.37	12.57	8	6.59	1.18
HOT STARTS																					
	8	332	80	8	1.15	0.57	8	2450	441												
DIFFERENCE (HOT - COLD)																					
	8	22	113	8	0.08	0.44	8	372	310												
F34																					
COLD STARTS					MEAN ODOMETER = 13292						PERCENT FAIL = 44										
	16	254	84	16	0.95	0.56	16	1999	472	16	291	82	16	1.17	0.47	16	1777	416	16	3.4	1.1	16	26.68	10.25	16	5.63	1.60
COLD W/ HOT STARTS					MEAN ODOMETER = 14047						PERCENT FAIL = 100										
	2	316	95	2	1.35	0.62	2	1901	123	2	345	96	2	1.53	0.65	2	1756	118	2	4.3	0.7	2	35.17	11.24	2	5.69	0.43
HOT STARTS																					
	2	313	11	2	1.01	0.16	2	2205	194												
DIFFERENCE (HOT - COLD)																					
	2	-3	106	2	-0.34	0.48	2	304	317												

KANSAS CITY, PHASE 1

CYCLES 6-7									COMPOSITE									PASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
F35																										
COLD STARTS						MEAN ODOMETER = 23141								PERCENT FAIL = 50												
18	269	110	18	1.25	0.74	18	1995	464	18	295	110	18	1.46	0.78	18	1837	439	18	3.9	1.5	18	36.75	15.99	14	6.57	1.74
COLD W/ HOT STARTS						MEAN ODOMETER = 23270								PERCENT FAIL = 33												
3	220	30	3	0.84	0.53	3	2097	810	3	251	27	3	1.07	0.47	3	1993	703	3	3.3	0.4	3	26.50	11.23	3	7.08	2.80
HOT STARTS																										
3	209	57	3	0.80	0.51	3	1964	1055																		
DIFFERENCE (HOT - COLD)																										
3	-10	81	3	-0.04	0.06	3	-133	963																		
F36																										
COLD STARTS						MEAN ODOMETER = 21174								PERCENT FAIL = 87												
16	242	63	16	2.03	1.03	16	1193	365	16	288	75	16	2.38	1.14	16	1113	346	16	4.1	1.1	16	64.28	31.11	16	4.15	1.28
COLD W/ HOT STARTS						MEAN ODOMETER = 21505								PERCENT FAIL = 100												
3	280	46	3	2.43	1.08	3	1211	602	3	332	55	3	3.14	1.64	3	1070	615	3	4.7	0.7	3	83.88	45.07	3	4.04	2.35
HOT STARTS																										
3	222	13	3	2.20	0.88	3	1120	315																		
DIFFERENCE (HOT - COLD)																										
3	-58	59	3	-0.23	0.82	3	-91	323																		
FORD																										
COLD STARTS						MEAN ODOMETER = 18083								PERCENT FAIL = 59												
99	260	82	99	1.28	0.86	99	1402	565	99	288	81	99	1.51	0.89	99	1706	556	99	3.5	1.2	99	25.25	23.24	99	5.63	1.73
COLD W/ HOT STARTS						MEAN ODOMETER = 19466								PERCENT FAIL = 70												
24	272	71	24	1.36	1.01	24	1834	567	24	300	70	24	1.63	1.13	24	1715	539	24	3.6	1.1	24	36.73	27.83	24	5.41	1.98
HOT STARTS																										
24	265	75	24	1.32	0.93	24	1931	712																		
DIFFERENCE (HOT - COLD)																										
24	-6	82	24	-0.04	0.39	24	157	433																		
GS1																										
COLD STARTS						MEAN ODOMETER = 19320								PERCENT FAIL = 69												
16	305	349	16	1.43	0.72	16	1393	366	16	331	317	16	1.83	0.71	16	1280	308	16	3.8	3.7	16	39.26	14.20	16	3.81	0.95
COLD W/ HOT STARTS						MEAN ODOMETER = 20459								PERCENT FAIL = 66												
6	231	89	6	1.70	0.88	6	1747	460	6	268	93	6	2.17	0.80	6	1154	372	6	3.1	1.1	6	45.72	14.47	6	3.38	1.15
HOT STARTS																										
6	202	32	6	1.72	1.61	6	1331	575																		
DIFFERENCE (HOT - COLD)																										
6	-28	80	6	0.02	0.85	6	124	474																		
GS2																										
COLD STARTS						MEAN ODOMETER = 18930								PERCENT FAIL = 67												
15	199	51	15	1.93	0.77	15	1478	377	15	233	60	15	1.96	0.74	15	1337	322	15	2.8	0.7	15	44.10	16.34	15	4.19	0.99
COLD W/ HOT STARTS						MEAN ODOMETER = 19449								PERCENT FAIL = 62												
8	187	52	8	1.40	0.87	8	1522	459	8	231	73	8	1.89	0.95	8	1368	396	8	2.8	0.9	8	43.08	18.71	8	4.30	1.27
HOT STARTS																										
8	251	135	8	1.42	0.84	8	1760	432																		
DIFFERENCE (HOT - COLD)																										
8	64	92	8	0.01	0.27	8	238	334																		

KANSAS CITY, PHASE 1

	CYCLES 6-7					COMPOSITE					MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM	HC PPM		CO PERCENT		NO PPM	HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	
G53																			
COLD STARTS					MEAN ODOMETER = 20938				PERCENT FAIL = 94										
	17	342 117	17	1.51 0.60	17 1766 299	17 370 117	17	1.73 0.50	17 1688	243	17	4.6 1.5	17	40.04 11.55	17	5.56 1.01			
COLD W/ HOT STARTS					MEAN ODOMETER = 20023				PERCENT FAIL = 100										
	8	366 145	8	1.48 0.79	8 1735 420	8 392 141	8	1.63 0.65	8 1665	381	8	4.9 1.7	8	38.57 14.61	8	5.72 1.35			
HOT STARTS																			
	8	325 132	8	1.26 0.52	8 1751 224														
DIFFERENCE (HOT - COLD)																			
	8	-40 189	8	-0.21 0.37	8 16 339														
G54																			
COLD STARTS					MEAN ODOMETER = 22333				PERCENT FAIL = 100										
	18	332 121	18	2.34 1.09	18 1350 489	18 361 104	18	2.79 1.10	18 1244	460	18	4.7 1.4	18	67.72 27.67	18	4.22 1.57			
COLD W/ HOT STARTS					MEAN ODOMETER = 25534				PERCENT FAIL = 100										
	5	446 177	5	2.23 0.80	5 1411 523	5 450 149	5	2.56 1.01	5 1319	530	5	6.0 2.0	5	63.91 24.55	5	4.64 1.75			
HOT STARTS																			
	5	210 71	5	1.97 0.96	5 968 177														
DIFFERENCE (HOT - COLD)																			
	5	-235 141	5	-0.26 0.75	5 -442 575														
G55																			
COLD STARTS					MEAN ODOMETER = 15264				PERCENT FAIL = 81										
	16	293 107	16	1.90 1.39	16 1768 574	16 320 109	16	2.33 1.33	16 1617	503	16	4.0 1.3	16	54.40 29.08	16	5.41 1.85			
COLD W/ HOT STARTS					MEAN ODOMETER = 17221				PERCENT FAIL = 100										
	8	316 86	8	2.31 1.63	8 1733 704	8 347 93	8	2.84 1.56	8 1560	646	8	4.4 1.1	8	66.66 33.49	8	5.28 2.27			
HOT STARTS																			
	8	465 697	8	1.28 0.61	8 1343 211														
DIFFERENCE (HOT - COLD)																			
	8	149 757	8	-1.03 1.51	8 110 541														
G56																			
COLD STARTS					MEAN ODOMETER = 19173				PERCENT FAIL = 87										
	15	264 77	15	1.54 0.44	15 1316 224	15 288 77	15	1.89 0.40	15 1233	165	15	3.8 1.1	15	46.53 10.07	15	4.20 0.67			
COLD W/ HOT STARTS					MEAN ODOMETER = 16244				PERCENT FAIL = 100										
	3	254 97	3	1.72 0.90	3 1418 171	3 279 101	3	1.98 0.66	3 1234	221	3	3.6 1.4	3	47.17 16.43	3	4.25 1.01			
HOT STARTS																			
	3	201 67	3	1.60 0.30	3 1234 347														
DIFFERENCE (HOT - COLD)																			
	3	-53 29	3	-0.12 0.34	3 -84 185														
CHEV																			
COLD STARTS					MEAN ODOMETER = 19471				PERCENT FAIL = 83										
	97	292 171	97	1.72 0.94	97 1515 439	97 320 159	97	2.10 0.93	97 1402	329	97	4.0 1.9	97	49.06 21.96	97	4.58 1.60			
COLD W/ HOT STARTS					MEAN ODOMETER = 19808				PERCENT FAIL = 86										
	38	298 136	38	1.79 1.05	38 1540 512	38 329 128	38	2.17 1.05	38 1420	470	38	4.1 1.7	38	50.58 23.56	38	4.70 1.68			
HOT STARTS																			
	38	295 331	38	1.49 0.90	38 1572 449														
DIFFERENCE (HOT - COLD)																			
	38	-3 365	38	-0.30 0.86	38 31 458														

KANSAS CITY, PHASE 1

	CYCLES 6-7								COMPOSITE								MASS EQUIVALENT							
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI							
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G61																								
COLD STARTS					MEAN ODOMETER = 18593						PERCENT FAIL = 56													
	18	233	57	18	1.30	0.63	18	1712	397	18	295	58	18	1.63	0.62	18	1573	370	18	3.2	0.8	18	39.05	14.69	18	5.15	1.37
COLD W/ HOT STARTS					MEAN ODOMETER = 18372						PERCENT FAIL = 75													
	8	248	44	8	1.48	0.67	8	1698	378	8	268	43	8	1.82	0.69	8	1564	361	8	3.3	0.6	8	42.34	15.56	8	5.16	1.39
HOT STARTS																								
	8	266	79	8	1.31	0.58	8	1833	424															
DIFFERENCE (HOT - COLD)																								
	8	18	50	8	-0.17	0.24	8	135	291															
G62																								
COLD STARTS					MEAN ODOMETER = 23816						PERCENT FAIL = 74													
	19	219	59	19	1.25	0.33	19	1653	296	19	240	58	19	1.64	0.27	19	1491	265	19	3.2	0.8	19	41.33	6.24	19	5.39	1.08
COLD W/ HOT STARTS					MEAN ODOMETER = 19641						PERCENT FAIL = 57													
	7	238	64	7	1.20	0.40	7	1745	143	7	258	64	7	1.57	0.28	7	1581	150	7	3.5	0.9	7	39.82	7.50	7	5.81	0.71
HOT STARTS																								
	7	207	43	7	0.99	0.35	7	1663	264															
DIFFERENCE (HOT - COLD)																								
	7	-30	31	7	-0.21	0.22	7	-81	175															
G63																								
COLD STARTS					MEAN ODOMETER = 17666						PERCENT FAIL = 87													
	16	264	69	16	1.81	0.89	16	1485	474	16	287	70	16	2.37	0.77	16	1329	390	16	3.9	1.0	16	60.27	20.04	16	4.71	1.41
COLD W/ HOT STARTS					MEAN ODOMETER = 16719						PERCENT FAIL = 100													
	7	276	95	7	1.95	0.70	7	1206	492	7	297	96	7	2.49	0.63	7	1112	437	7	4.0	1.3	7	62.73	16.39	7	3.90	1.54
HOT STARTS																								
	7	268	45	7	1.66	0.66	7	1487	565															
DIFFERENCE (HOT - COLD)																								
	7	-7	98	7	-0.29	0.30	7	281	507															
PONT																								
COLD STARTS					MEAN ODOMETER = 20186						PERCENT FAIL = 72													
	53	237	63	53	1.43	0.68	53	1622	395	53	259	64	53	1.86	0.66	53	1470	350	53	3.4	0.9	53	45.93	17.10	53	5.10	1.29
COLD W/ HOT STARTS					MEAN ODOMETER = 18250						PERCENT FAIL = 77													
	22	253	68	22	1.54	0.66	22	1556	428	22	274	68	22	1.96	0.67	22	1425	390	22	3.6	1.0	22	46.03	16.75	22	4.96	1.45
HOT STARTS																								
	22	248	63	22	1.32	0.59	22	1669	439															
DIFFERENCE (HOT - COLD)																								
	22	-5	65	22	-0.22	0.25	22	112	364															
G66																								
COLD STARTS					MEAN ODOMETER = 13621						PERCENT FAIL = 83													
	18	206	62	18	1.60	0.58	18	1405	254	18	245	72	18	2.04	0.56	18	1288	241	18	3.2	0.9	18	49.36	13.80	18	4.43	0.86
COLD W/ HOT STARTS					MEAN ODOMETER = 27936						PERCENT FAIL = 100													
	2	185	135	2	1.57	0.57	2	1415	294	2	230	153	2	2.00	0.24	2	1262	188	2	3.1	2.2	2	49.66	8.45	2	4.36	0.76
HOT STARTS																								
	2	151	42	2	1.57	0.01	2	1448	220															
DIFFERENCE (HOT - COLD)																								
	2	-34	93	2	0.00	0.57	2	32	74															

KANSAS CITY, PHASE 1

CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G67							MEAN ODOMETER = 19871						PERCENT FAIL = 60													
COLD STARTS																										
15	187	58	15	1.10	0.47	15	1597	350	15	217	65	15	1.78	0.93	15	1420	382	15	3.0	1.2	15	45.74	24.62	15	5.06	1.32
COLD W/ HOT STARTS							MEAN ODOMETER = 16587						PERCENT FAIL = 100													
2	256	68	2	1.63	0.57	2	1881	758	2	352	192	2	3.08	2.16	2	1590	987	2	4.8	2.6	2	78.98	55.49	2	5.61	3.53
HOT STARTS																										
2	209	70	2	1.49	0.66	2	1542	363																		
DIFFERENCE (HOT - COLD)																										
2	-47	1	2	-0.15	0.09	2	-337	314																		
OLDS							MEAN ODOMETER = 16462						PERCENT FAIL = 73													
COLD STARTS																										
33	197	60	33	1.37	0.58	33	1492	312	33	232	78	33	1.92	0.75	33	1348	315	33	3.1	1.0	33	47.71	18.89	33	4.72	1.12
COLD W/ HOT STARTS							MEAN ODOMETER = 22261						PERCENT FAIL = 100													
4	220	97	4	1.60	0.47	4	1648	541	4	291	158	4	2.54	1.40	4	1426	610	4	3.9	2.2	4	64.32	36.56	4	4.99	2.17
HOT STARTS																										
4	180	58	4	1.53	0.39	4	1495	251																		
DIFFERENCE (HOT - COLD)																										
4	-40	54	4	-0.07	0.34	4	-153	315																		
G71							MEAN ODOMETER = 24407						PERCENT FAIL = 87													
COLD STARTS																										
16	224	83	16	2.17	1.02	16	1422	417	16	247	79	16	2.62	0.30	16	1304	377	16	3.3	1.1	16	66.67	23.18	16	4.64	1.31
COLD W/ HOT STARTS							MEAN ODOMETER = 30457						PERCENT FAIL = 100													
2	287	100	2	2.63	1.68	2	1477	813	2	316	107	2	2.97	1.26	2	1365	661	2	4.2	1.6	2	74.19	34.70	2	4.59	2.13
HOT STARTS																										
2	263	118	2	2.62	1.92	2	1245	661																		
DIFFERENCE (HOT - COLD)																										
2	-24	18	2	-0.01	0.24	2	-232	151																		
G72							MEAN ODOMETER = 28549						PERCENT FAIL = 87													
COLD STARTS																										
16	234	54	16	1.87	0.31	16	1556	379	16	254	51	16	2.25	0.71	16	1440	467	16	3.5	0.7	16	57.90	18.29	16	5.17	1.67
COLD W/ HOT STARTS							MEAN ODOMETER = 20492						PERCENT FAIL = 100													
4	276	43	4	2.43	0.75	4	1360	468	4	294	52	4	2.62	0.79	4	1312	433	4	4.0	0.7	4	67.43	20.11	4	4.76	1.63
HOT STARTS																										
4	246	29	4	2.50	0.80	4	1190	358																		
DIFFERENCE (HOT - COLD)																										
4	-30	37	4	0.07	0.14	4	-170	165																		
BUIC							MEAN ODOMETER = 26478						PERCENT FAIL = 87													
COLD STARTS																										
32	229	69	32	2.02	0.97	32	1489	502	32	251	66	32	2.44	0.82	32	1372	424	32	3.4	0.9	32	62.29	20.98	32	4.88	1.50
COLD W/ HOT STARTS							MEAN ODOMETER = 23814						PERCENT FAIL = 100													
6	280	56	6	2.50	0.95	6	1393	517	6	301	63	6	2.74	0.85	6	1329	448	6	4.1	0.9	6	69.68	22.27	6	4.70	1.58
HOT STARTS																										
6	251	58	6	2.54	1.06	6	1208	406																		
DIFFERENCE (HOT - COLD)																										
6	-28	30	6	0.04	0.16	6	-190	148																		

KANSAS CITY, PHASE 1

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G76																					
COLD STARTS					MEAN ODOMETER = 21406						PERCENT FAIL = 27										
	15	158	50	15	1.07	0.36	15	1735	368	15	181	54	15	1.31	0.32	15	1670	375	15	2.6	0.8	15	35.14	8.71	15	6.24	1.43
COLD W/ HOT STARTS					MEAN ODOMETER = 33162						PERCENT FAIL = 0										
	1	141	0	1	0.73	0.0	1	2168	0	1	173	0	1	0.88	0.0	1	2092	0	1	2.5	0.0	1	23.83	0.0	1	7.83	0.0
HOT STARTS																					
	1	91	0	1	0.79	0.0	1	2048	0												
DIFFERENCE (HOT - COLD)																					
	1	-50	0	1	0.06	0.0	1	-120	0												
G.M.																					
COLD STARTS					MEAN ODOMETER = 20305						PERCENT FAIL = 76										
	230	248	127	230	1.60	0.85	230	1547	421	230	275	122	230	2.02	0.84	230	1423	384	230	3.6	1.5	230	49.09	20.55	230	4.87	1.40
COLD W/ HOT STARTS					MEAN ODOMETER = 19990						PERCENT FAIL = 84										
	71	276	112	71	1.75	0.73	71	1548	402	71	305	110	71	2.16	0.96	71	1424	447	71	3.9	1.5	71	51.80	22.87	71	4.84	1.63
HOT STARTS																					
	71	267	247	71	1.52	0.85	71	1573	444												
DIFFERENCE (HOT - COLD)																					
	71	-8	269	71	-0.23	0.65	71	25	406												
V81																					
COLD STARTS					MEAN ODOMETER = 18342						PERCENT FAIL = 39										
	18	239	155	18	1.75	0.63	18	1613	259	18	339	159	18	1.93	0.60	18	1650	249	18	2.2	1.0	18	23.73	7.10	18	2.91	0.51
COLD W/ HOT STARTS					MEAN ODOMETER = 18728						PERCENT FAIL = 50										
	6	297	121	6	1.95	0.84	6	1514	302	6	340	133	6	2.13	0.81	6	1547	341	6	2.2	0.9	6	25.78	9.84	6	2.68	0.60
HOT STARTS																					
	6	345	104	6	2.01	0.87	6	1561	414												
DIFFERENCE (HOT - COLD)																					
	6	47	57	6	0.06	0.11	6	47	581												
V82																					
COLD STARTS					MEAN ODOMETER = 20788						PERCENT FAIL = 13										
	15	254	121	15	1.11	0.85	15	1477	599	15	272	90	15	1.14	0.80	15	1519	603	15	2.2	0.7	15	17.73	11.72	15	3.29	1.42
COLD W/ HOT STARTS					MEAN ODOMETER = 25322						PERCENT FAIL = 0										
	2	243	60	2	0.58	0.08	2	1245	264	2	270	77	2	0.68	0.16	2	1272	234	2	2.1	0.0	2	10.20	2.42	2	2.62	0.54
HOT STARTS																					
	2	220	27	2	0.86	0.39	2	1189	414												
DIFFERENCE (HOT - COLD)																					
	2	-22	33	2	0.28	0.30	2	-56	149												
VOLK																					
COLD STARTS					MEAN ODOMETER = 19454						PERCENT FAIL = 27										
	33	279	140	33	1.46	0.80	33	1551	444	33	309	135	33	1.57	0.79	33	1530	443	33	2.2	0.9	33	20.77	8.88	33	3.06	1.03
COLD W/ HOT STARTS					MEAN ODOMETER = 20376						PERCENT FAIL = 37										
	8	283	107	8	1.61	0.95	8	1446	345	8	322	121	8	1.77	0.96	8	1479	327	8	2.2	0.8	8	21.89	11.04	8	2.67	0.55
HOT STARTS																					
	8	313	105	8	1.73	0.92	8	1468	420												
DIFFERENCE (HOT - COLD)																					
	8	30	59	8	0.12	0.18	8	21	496												

KANSAS CITY, PHASE 1

CYCLES 6-7									COMPOSITE									MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
TOT.																										
COLD STARTS						MEAN ODOMETER = 19686									PERCENT FAIL = 69											
443	259	141	443	1.53	0.88	442	1684	514	443	288	143	443	1.86	0.89	442	1574	482	443	3.5	1.9	443	42.91	22.62	442	5.00	1.63
COLD W/ HOT STARTS						MEAN ODOMETER = 20151									PERCENT FAIL = 79											
129	274	102	129	1.67	0.93	129	1661	529	129	307	107	129	2.03	0.98	129	1540	493	129	3.7	1.4	129	46.43	24.47	129	4.89	1.75
HOT STARTS																										
129	266	191	129	1.51	0.88	129	1667	537																		
DIFFERENCE (HOT - COLD)																										
129	-8	206	129	-0.15	0.56	129	5	423																		

232<

TABLE C-2

Kansas City

Phase II

KANSAS CITY, PHASE 2

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI			CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
A01																					
COLD STARTS							MEAN ODOMETER = 24713						PERCENT FAIL = 76								
	13	329	132	13	1.23	1.43	13	1410	754	13	366	162	13	1.98	1.31	13	1528	670	13	3.7	1.3
COLD W/ HOT STARTS							MEAN ODOMETER = 47764						PERCENT FAIL = 100								
	1	480	0	1	3.86	0.0	1	699	0	1	654	0	1	3.86	0.0	1	675	0	1	6.0	0.0
HOT STARTS																					
	1	549	0	1	3.94	0.0	1	751	0												
DIFFERENCE (HOT - COLD)																					
	1	69	0	1	0.08	0.0	1	52	0												
C11																					
COLD STARTS							MEAN ODOMETER = 26773						PERCENT FAIL = 58								
	12	260	100	12	1.25	0.89	12	1943	615	12	302	126	12	1.60	0.80	12	1815	574	12	3.0	1.1
COLD W/ HOT STARTS							MEAN ODOMETER = 17942						PERCENT FAIL = 50								
	2	250	7	2	1.73	0.54	2	1982	404	2	300	61	2	2.04	0.83	2	1853	567	2	2.9	0.4
HOT STARTS																					
	2	234	4	2	1.70	0.55	2	2232	777												
DIFFERENCE (HOT - COLD)																					
	2	-15	2	2	-0.03	0.01	2	250	373												
C12																					
COLD STARTS							MEAN ODOMETER = 33402						PERCENT FAIL = 83								
	12	287	45	12	1.78	0.60	12	1721	510	12	326	57	12	2.07	0.53	12	1538	425	12	4.0	0.8
COLD W/ HOT STARTS							MEAN ODOMETER = 61272						PERCENT FAIL = 100								
	1	358	0	1	1.31	0.0	1	2342	0	1	468	0	1	1.68	0.0	1	2153	0	1	5.4	0.0
HOT STARTS																					
	1	205	0	1	1.11	0.0	1	864	0												
DIFFERENCE (HOT - COLD)																					
	1	-153	0	1	-0.20	0.0	1	-1478	0												
C13																					
COLD STARTS							MEAN ODOMETER = 32006						PERCENT FAIL = 75								
	12	278	112	12	2.05	1.30	12	1529	425	12	339	148	12	2.23	1.35	12	1407	412	12	4.6	2.0
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
C14																					
COLD STARTS							MEAN ODOMETER = 31497						PERCENT FAIL = 90								
	11	355	161	11	2.61	1.17	11	1184	535	11	402	190	11	2.93	1.30	11	1058	503	11	5.3	2.4
COLD W/ HOT STARTS							MEAN ODOMETER = 29098						PERCENT FAIL = 100								
	3	416	189	3	3.90	0.34	3	833	282	3	555	225	3	4.24	0.62	3	754	273	3	7.4	2.8
HOT STARTS																					
	3	251	69	3	2.17	1.50	3	1257	548												
DIFFERENCE (HOT - COLD)																					
	3	-165	226	3	-1.73	1.22	3	424	273												

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A

KANSAS CITY, PHASE 2

	CYCLES 6-7					COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
CHRY																				
COLD STARTS							MEAN ODOMETER = 30907						PERCENT FAIL = 76							
	47	294	113	47	1.91	1.10	47	1603	579	47	341	137	47	2.19	1.12	47	1463	540	47	4.2	1.8	47	51.22	28.23	47	5.53	1.90
COLD W/ HOT STARTS							MEAN ODOMETER = 30741						PERCENT FAIL = 83							
	6	351	144	6	2.74	1.31	6	1467	751	6	456	191	6	3.08	1.39	6	1353	733	6	5.5	2.8	6	71.28	38.84	6	4.43	1.93
HOT STARTS																				
	6	238	47	6	1.84	1.07	6	1516	755											
DIFFERENCE (HOT - COLD)																				
	6	-113	162	6	-0.91	1.19	6	49	790											
F31																				
COLD STARTS							MEAN ODOMETER = 31343						PERCENT FAIL = 38							
	13	255	68	13	2.29	2.31	13	1680	891	13	279	71	13	2.42	2.31	13	1628	867	13	3.0	0.9	13	50.03	49.76	13	5.17	2.71
COLD W/ HOT STARTS							MEAN ODOMETER = 29082						PERCENT FAIL = 100							
	2	312	95	2	6.38	1.91	2	286	236	2	347	53	2	6.49	1.81	2	281	231	2	3.8	0.9	2	134.80	48.16	2	0.83	0.69
HOT STARTS																				
	2	284	91	2	6.22	1.82	2	306	263											
DIFFERENCE (HOT - COLD)																				
	2	-28	35	2	-0.16	0.01	2	20	26											
F32																				
COLD STARTS							MEAN ODOMETER = 17577						PERCENT FAIL = 64							
	14	258	76	14	1.19	0.88	14	1832	617	14	315	106	14	1.38	0.98	14	1732	585	14	3.1	1.0	14	25.05	17.41	14	5.48	2.21
COLD W/ HOT STARTS							MEAN ODOMETER = 25691						PERCENT FAIL = 100							
	1	215	0	1	2.88	0.0	1	724	0	1	265	0	1	3.32	0.0	1	665	0	1	2.4	0.0	1	57.70	0.0	1	1.74	0.0
HOT STARTS																				
	1	190	0	1	2.35	0.0	1	754	0											
DIFFERENCE (HOT - COLD)																				
	1	-25	0	1	-0.53	0.0	1	30	0											
F33																				
COLD STARTS							MEAN ODOMETER = 32124						PERCENT FAIL = 86							
	15	363	131	15	1.19	0.51	15	1793	445	15	397	151	15	1.32	0.56	15	1681	451	15	4.9	2.0	15	30.57	13.47	15	6.52	1.76
COLD W/ HOT STARTS							MEAN ODOMETER = 38227						PERCENT FAIL = 100							
	3	587	24	3	1.25	0.75	3	1674	243	3	650	145	3	1.23	0.64	3	1637	164	3	8.3	1.8	3	29.44	15.25	3	6.87	0.68
HOT STARTS																				
	3	550	89	3	0.90	0.63	3	1531	328											
DIFFERENCE (HOT - COLD)																				
	3	-37	83	3	-0.35	0.49	3	-143	305											
F34																				
COLD STARTS							MEAN ODOMETER = 22501						PERCENT FAIL = 83							
	12	299	69	12	0.90	0.40	12	1730	295	12	336	100	12	1.11	0.46	12	1585	272	12	4.0	1.4	12	24.80	10.13	12	6.02	1.54
COLD W/ HOT STARTS							MEAN ODOMETER = 32896						PERCENT FAIL = 66							
	3	299	126	3	0.76	0.38	3	1318	198	3	399	196	3	0.94	0.46	3	1230	168	3	4.7	2.9	3	21.14	13.09	3	4.29	1.50
HOT STARTS																				
	3	259	65	3	0.64	0.33	3	1428	74											
DIFFERENCE (HOT - COLD)																				
	3	-39	62	3	-0.12	0.12	3	110	266											

KANSAS CITY, PHASE 2

CYCLES 6-7									COMPOSITE								MASS EQUIVALENT							
HC PPM		CO PERCENT			NO PPM		HC PPM		CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
F35																								
COLD STARTS						MEAN ODOMETER = 30543						PERCENT FAIL = 56												
16	244	43	16	1.30	0.72	16	1665	363	16	277	51	16	1.44	0.73	16	1594	348	16	3.7	0.7	16	36.16	18.64	16	6.55	1.29
COLD W/ HOT STARTS						MEAN ODOMETER = 35245						PERCENT FAIL = 50												
2	201	28	2	1.24	1.34	2	2063	72	2	240	70	2	1.41	1.36	2	1981	12	2	3.3	1.0	2	36.06	34.73	2	7.06	0.17
HOT STARTS																								
2	239	25	2	1.13	1.22	2	2080	232																
DIFFERENCE (HOT - COLD)																								
2	37	3	2	-0.11	0.12	2	17	159																
F36																								
COLD STARTS						MEAN ODOMETER = 26150						PERCENT FAIL = 75												
12	239	69	12	1.91	0.75	12	1154	345	12	258	73	12	2.06	0.77	12	1095	305	12	3.7	1.1	12	55.62	20.99	12	4.75	1.12
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																								
0	0	0	0	0.0	0.0	0	0	0																
DIFFERENCE (HOT - COLD)																								
0	0	0	0	0.0	0.0	0	0	0																
FORD																								
COLD STARTS						MEAN ODOMETER = 26937						PERCENT FAIL = 67												
82	277	90	82	1.45	1.17	82	1654	566	82	312	106	82	1.61	1.18	82	1565	536	82	3.8	1.4	82	36.63	26.79	82	5.80	1.92
COLD W/ HOT STARTS						MEAN ODOMETER = 33428						PERCENT FAIL = 81												
11	354	166	11	2.20	2.29	11	1309	650	11	417	196	11	2.33	2.30	11	1253	624	11	5.1	2.7	11	50.10	47.89	11	4.64	2.65
HOT STARTS																								
11	333	153	11	1.97	2.29	11	1309	636																
DIFFERENCE (HOT - COLD)																								
11	-21	56	11	-0.22	0.27	11	0	213																
G51																								
COLD STARTS						MEAN ODOMETER = 31087						PERCENT FAIL = 72												
11	279	191	11	1.81	1.41	11	1215	399	11	333	221	11	2.32	1.33	11	1076	361	11	3.8	2.6	11	49.87	28.63	11	3.53	1.22
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																								
0	0	0	0	0.0	0.0	0	0	0																
DIFFERENCE (HOT - COLD)																								
0	0	0	0	0.0	0.0	0	0	0																
G52																								
COLD STARTS						MEAN ODOMETER = 25687						PERCENT FAIL = 38												
13	187	47	13	0.99	0.43	13	1359	456	13	220	50	13	1.41	0.42	13	1210	392	13	2.6	0.6	13	32.14	10.58	13	4.51	1.25
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																								
0	0	0	0	0.0	0.0	0	0	0																
DIFFERENCE (HOT - COLD)																								
0	0	0	0	0.0	0.0	0	0	0																

KANSAS CITY, PHASE 2

CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G53																				
COLD STARTS						MEAN ODOMETER = 29101						PERCENT FAIL = 100								
14	426	174	14	1.65	0.65	14	1519	345	14	453	173	14	1.86	0.68	14	1449	317	14	5.6	2.3	14	42.85	14.49	14	5.85	1.71
COLD W/ HOT STARTS						MEAN ODOMETER = 44555						PERCENT FAIL = 100								
2	598	178	2	2.33	0.47	2	1290	333	2	616	188	2	2.30	0.21	2	1303	429	2	7.8	2.4	2	55.02	4.89	2	6.01	1.98
HOT STARTS																				
2	280	114	2	1.71	0.45	2	1042	332												
DIFFERENCE (HOT - COLD)																				
2	-318	63	2	-0.62	0.01	2	-248	1												
G54																				
COLD STARTS						MEAN ODOMETER = 31876						PERCENT FAIL = 93								
16	398	189	16	2.99	1.65	16	925	418	16	430	181	16	3.24	1.61	16	874	391	16	5.6	2.3	16	78.20	37.28	16	3.48	1.62
COLD W/ HOT STARTS						MEAN ODOMETER = 31676						PERCENT FAIL = 100								
7	445	138	7	4.17	1.71	7	707	379	7	489	135	7	4.41	1.63	7	672	361	7	6.3	1.9	7	105.26	35.98	7	2.71	1.59
HOT STARTS																				
7	615	780	7	3.05	1.58	7	768	410												
DIFFERENCE (HOT - COLD)																				
7	169	687	7	-1.12	0.33	7	61	115												
G55																				
COLD STARTS						MEAN ODOMETER = 24683						PERCENT FAIL = 90								
11	301	77	11	1.64	0.77	11	1770	501	11	321	61	11	2.23	0.93	11	1576	498	11	4.2	0.9	11	54.57	24.22	11	6.31	2.09
COLD W/ HOT STARTS						MEAN ODOMETER = 12885						PERCENT FAIL = 100								
1	282	0	1	3.71	0.0	1	948	0	1	314	0	1	4.30	0.0	1	844	0	1	4.3	0.0	1	110.27	0.0	1	3.73	0.0
HOT STARTS																				
1	234	0	1	1.95	0.0	1	1326	0												
DIFFERENCE (HOT - COLD)																				
1	-48	0	1	-1.76	0.0	1	378	0												
G56																				
COLD STARTS						MEAN ODOMETER = 27997						PERCENT FAIL = 100								
8	268	50	8	1.76	0.68	8	1192	361	8	293	54	8	2.02	0.66	8	1097	311	8	3.9	0.8	8	50.52	18.01	8	4.48	1.12
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0								
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																				
0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																				
0	0	0	0	0.0	0.0	0	0	0												
CHEV																				
COLD STARTS						MEAN ODOMETER = 28614						PERCENT FAIL = 82								
73	319	164	73	1.86	1.23	73	1316	489	73	351	165	73	2.23	1.20	73	1205	445	73	4.4	2.1	73	52.35	28.54	73	4.66	1.86
COLD W/ HOT STARTS						MEAN ODOMETER = 32372						PERCENT FAIL = 100								
10	459	155	10	3.75	1.60	10	848	410	10	497	152	10	3.98	1.60	10	815	420	10	6.4	2.0	10	95.71	36.44	10	3.47	2.00
HOT STARTS																				
10	509	660	10	2.67	1.43	10	879	402												
DIFFERENCE (HOT - COLD)																				
10	50	598	10	-1.08	0.42	10	31	200												

KANSAS CITY, PHASE 2

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G61																					
COLD STARTS							MEAN ODOMETER = 27303						PERCENT FAIL = 57								
	14	223	51	14	1.27	0.49	14	1558	392	14	251	56	14	1.55	0.41	14	1417	368	14	3.1	0.7
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G62																					
COLD STARTS							MEAN ODOMETER = 27637						PERCENT FAIL = 50								
	12	222	27	12	1.29	0.37	12	1538	269	12	235	23	12	1.52	0.36	12	1397	237	12	3.2	0.4
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G63																					
COLD STARTS							MEAN ODOMETER = 26390						PERCENT FAIL = 80								
	10	301	110	10	1.73	0.90	10	1538	280	10	318	109	10	2.11	0.84	10	1380	195	10	4.3	1.5
COLD W/ HOT STARTS							MEAN ODOMETER = 22406						PERCENT FAIL = 100								
	1	539	0	1	3.00	0.0	1	1501	0	1	526	0	1	3.57	0.0	1	1337	0	1	7.2	0.0
HOT STARTS																					
	1	391	0	1	2.74	0.0	1	1233	0												
DIFFERENCE (HOT - COLD)																					
	1	-148	0	1	-0.26	0.0	1	-268	0												
PONT																					
COLD STARTS							MEAN ODOMETER = 27161						PERCENT FAIL = 61								
	36	244	74	36	1.41	0.62	36	1545	317	36	264	75	36	1.69	0.60	36	1400	279	36	3.5	1.1
COLD W/ HOT STARTS							MEAN ODOMETER = 22406						PERCENT FAIL = 100								
	1	539	0	1	3.00	0.0	1	1501	0	1	526	0	1	3.57	0.0	1	1337	0	1	7.2	0.0
HOT STARTS																					
	1	391	0	1	2.74	0.0	1	1233	0												
DIFFERENCE (HOT - COLD)																					
	1	-148	0	1	-0.26	0.0	1	-268	0												
G66																					
COLD STARTS							MEAN ODOMETER = 23447						PERCENT FAIL = 92								
	14	232	56	14	1.86	0.54	14	1741	187	14	267	53	14	2.24	0.59	14	1134	159	14	3.4	0.7
COLD W/ HOT STARTS							MEAN ODOMETER = 25647						PERCENT FAIL = 100								
	1	383	0	1	3.34	0.0	1	882	0	1	405	0	1	3.69	0.0	1	794	0	1	5.1	0.0
HOT STARTS																					
	1	341	0	1	2.05	0.0	1	1099	0												
DIFFERENCE (HOT - COLD)																					
	1	-42	0	1	-1.29	0.0	1	217	0												

	MASS EQUIVALENT					
	CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD
G61						
COLD STARTS						
	14	35.93	9.68	14	5.17	1.15
COLD W/ HOT STARTS						
	0	0.0	0.0	0	0.0	0.0
HOT STARTS						
DIFFERENCE (HOT - COLD)						
G62						
COLD STARTS						
	12	38.18	9.07	12	5.51	0.93
COLD W/ HOT STARTS						
	0	0.0	0.0	0	0.0	0.0
HOT STARTS						
DIFFERENCE (HOT - COLD)						
G63						
COLD STARTS						
	10	53.66	21.71	10	5.55	0.98
COLD W/ HOT STARTS						
	1	91.55	0.0	1	5.84	0.0
HOT STARTS						
DIFFERENCE (HOT - COLD)						
PONT						
COLD STARTS						
	36	41.61	15.50	36	5.39	1.03
COLD W/ HOT STARTS						
	1	91.55	0.0	1	5.84	0.0
HOT STARTS						
DIFFERENCE (HOT - COLD)						
G66						
COLD STARTS						
	14	54.17	13.66	14	4.38	0.54
COLD W/ HOT STARTS						
	1	88.09	0.0	1	3.29	0.0
HOT STARTS						
DIFFERENCE (HOT - COLD)						

KANSAS CITY, PHASE 2

	CYCLES					COMPOSITE					MASS EQUIVALENT								
	HC PPM		CO PERCENT			NO PPM			HC PPM		CO PERCENT			NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
	N	MEAN STD	N	MEAN	STD	N	MEAN STD	N	MEAN STD	N	MEAN	STD	N	MEAN	STD	N MEAN STD	N	MEAN	STD	N MEAN STD	
G67																					
COLD STARTS						MEAN ODOMETER = 31936					PERCENT FAIL = 66										
	12 280 237	12	2.40	2.13		12 1220 558		12 288 204		12	2.61	2.13	12	1128	524	12 3.9	2.8	12	66.94 54.70	12 4.77 2.31	
COLD W/ HOT STARTS						MEAN ODOMETER = 46357					PERCENT FAIL = 100										
	1 205 0	1	5.34	0.0		1 260 0		1 258 0		1	5.91	0.0	1	220	0	1 3.5	0.0	1	151.18 0.0	1 0.77 0.0	
HOT STARTS																					
	1 201 0	1	4.88	0.0		1 303 0															
DIFFERENCE (HOT - COLD)																					
	1 -4 0	1	-0.46	0.0		1 43 0															
OLDS																					
COLD STARTS						MEAN ODOMETER = 27365					PERCENT FAIL = 81										
	26 254 164	26	2.11	1.49		26 1231 394		26 277 141		26	2.41	1.49	26	1131	366	26 3.7	1.9	26	60.06 38.15	26 4.56 1.59	
COLD W/ HOT STARTS						MEAN ODOMETER = 36002					PERCENT FAIL = 100										
	2 294 125	2	4.34	1.41		2 571 439		2 331 103		2	4.80	1.57	2	507	405	2 4.3	1.2	2	119.63 44.61	2 2.03 1.78	
HOT STARTS																					
	2 271 98	2	3.46	2.00		2 701 562															
DIFFERENCE (HOT - COLD)																					
	2 -23 26	2	-0.88	0.59		2 130 123															
G71																					
COLD STARTS						MEAN ODOMETER = 33371					PERCENT FAIL = 90										
	11 352 243	11	2.68	0.92		11 1129 360		11 352 196		11	2.95	0.95	11	1057	325	11 4.8	2.7	11	75.65 24.21	11 4.39 1.56	
COLD W/ HOT STARTS						MEAN ODOMETER = 56201					PERCENT FAIL = 100										
	3 604 388	3	3.60	0.37		3 784 363		3 554 303		3	3.98	0.38	3	721	305	3 7.6	4.1	3	101.98 9.77	3 2.80 1.24	
HOT STARTS																					
	3 353 81	3	3.23	1.42		3 851 575															
DIFFERENCE (HOT - COLD)																					
	3 -251 309	3	-0.37	1.05		3 67 214															
G72																					
COLD STARTS						MEAN ODOMETER = 35770					PERCENT FAIL = 83										
	12 249 67	12	2.04	0.84		12 1323 415		12 259 67		12	2.21	0.86	12	1256	403	12 3.5	0.9	12	56.74 22.10	12 5.26 1.46	
COLD W/ HOT STARTS						MEAN ODOMETER = 39522					PERCENT FAIL = 100										
	2 355 70	2	2.96	0.83		2 1046 468		2 356 87		2	3.09	0.78	2	1028	388	2 4.8	1.2	2	79.28 20.26	2 4.10 0.85	
HOT STARTS																					
	2 304 11	2	2.14	0.39		2 1330 79															
DIFFERENCE (HOT - COLD)																					
	2 -51 81	2	-0.82	1.22		2 284 388															
BUIC																					
COLD STARTS						MEAN ODOMETER = 34623					PERCENT FAIL = 86										
	23 298 178	23	2.35	0.92		23 1230 393		23 303 148		23	2.57	0.96	23	1161	374	23 4.1	2.0	23	65.78 24.57	23 4.84 1.54	
COLD W/ HOT STARTS						MEAN ODOMETER = 49529					PERCENT FAIL = 100										
	5 505 308	5	3.35	0.60		5 889 376		5 474 244		5	3.62	0.68	5	844	335	5 6.5	3.3	5	92.90 17.46	5 3.32 1.21	
HOT STARTS																					
	5 333 63	5	2.80	1.18		5 1043 485															
DIFFERENCE (HOT - COLD)																					
	5 -171 248	5	-0.55	0.99		5 153 273															

KANSAS CITY, PHASE 2

	CYCLES 6-7								COMPOSITE								PASS EQUIVALENT							
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI							
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G76																								
COLD STARTS							MEAN ODOMETER = 33598									PERCENT FAIL = 25								
	12	173	69	12	1.07	0.46	12	1535	492	12	187	63	12	1.13	0.40	12	1516	454	12	2.7	0.9	12	30.69	10.70	12	6.53	1.80
COLD W/ HOT STARTS							MEAN ODOMETER = 0									PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																								
	0	0	0	0	0.0	0.0	0	0	0															
DIFFERENCE (HOT - COLD)																								
	0	0	0	0	0.0	0.0	0	0	0															
G.M.																								
COLD STARTS							MEAN ODOMETER = 29280									PERCENT FAIL = 74								
	170	280	151	170	1.81	1.14	170	1356	443	170	303	146	170	2.11	1.14	170	1251	407	170	3.9	1.9	170	51.54	28.09	170	4.96	1.69
COLD W/ HOT STARTS							MEAN ODOMETER = 36988									PERCENT FAIL = 100								
	18	458	201	18	3.66	1.29	18	864	409	18	474	172	18	3.95	1.31	18	818	398	18	6.2	2.3	18	97.36	30.98	18	3.40	1.80
HOT STARTS																								
	18	427	492	18	2.80	1.31	18	924	420															
DIFFERENCE (HOT - COLD)																								
	18	-30	462	18	-0.87	0.65	18	59	223															
V81																								
COLD STARTS							MEAN ODOMETER = 27430									PERCENT FAIL = 66								
	15	473	211	15	1.99	0.58	15	1456	361	15	528	219	15	2.16	0.52	15	1467	338	15	3.4	1.4	15	26.47	5.89	15	2.89	0.63
COLD W/ HOT STARTS							MEAN ODOMETER = 22296									PERCENT FAIL = 100								
	1	551	0	1	2.16	0.0	1	1389	0	1	559	0	1	2.36	0.0	1	1426	0	1	3.6	0.0	1	28.59	0.0	1	2.71	0.0
HOT STARTS																								
	1	486	0	1	2.04	0.0	1	1278	0															
DIFFERENCE (HOT - COLD)																								
	1	-65	0	1	-0.12	0.0	1	-111	0															
V82																								
COLD STARTS							MEAN ODOMETER = 30919									PERCENT FAIL = 28								
	14	301	208	14	1.50	1.10	14	1156	495	14	330	225	14	1.51	1.06	14	1183	499	14	2.7	1.8	14	22.76	15.66	14	2.83	1.32
COLD W/ HOT STARTS							MEAN ODOMETER = 0									PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																								
	0	0	0	0	0.0	0.0	0	0	0															
DIFFERENCE (HOT - COLD)																								
	0	0	0	0	0.0	0.0	0	0	0															
VOLK																								
COLD STARTS							MEAN ODOMETER = 29114									PERCENT FAIL = 48								
	29	390	224	29	1.75	0.89	29	1311	449	29	433	240	29	1.85	0.88	29	1330	440	29	3.1	1.6	29	24.68	11.61	29	2.86	1.00
COLD W/ HOT STARTS							MEAN ODOMETER = 22296									PERCENT FAIL = 100								
	1	551	0	1	2.16	0.0	1	1389	0	1	559	0	1	2.36	0.0	1	1426	0	1	3.6	0.0	1	28.59	0.0	1	2.71	0.0
HOT STARTS																								
	1	486	0	1	2.04	0.0	1	1278	0															
DIFFERENCE (HOT - COLD)																								
	1	-65	0	1	-0.12	0.0	1	-111	0															

KANSAS CITY, PHASE 2

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOHC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
TOT																											
COLD STARTS								MEAN ODOMETER = 28753									PERCENT FAIL = 70										
	341	293	144	341	1.74	1.14	341	1467	525	341	324	151	341	1.97	1.15	341	1373	490	341	3.8	1.7	341	45.07	27.94	341	5.05	1.91
COLD W/ HOT STARTS								MEAN ODOMETER = 34811									PERCENT FAIL = 91										
	37	413	181	37	3.04	1.72	37	1104	587	37	461	178	37	3.28	1.76	37	1047	565	37	5.7	2.5	37	76.41	47.44	37	3.87	2.12
HOT STARTS																											
	37	373	356	37	2.41	1.64	37	1140	579																		
DIFFERENCE (HOT - COLD)																											
	37	-39	327	37	-0.64	0.73	37	35	352																		

TABLE C-3

Kansas City

Phase III

KANSAS CITY, PHASE 3

	CYCLES 6-7								COMPOSITE								MASS EQUIVALENT							
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI							
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
A01																								
COLD STARTS							MEAN ODOMETER = 25109						PERCENT FAIL = 100											
	9	337	98	9	1.39	0.59	9	2030	382	9	376	115	9	1.52	0.56	9	1930	389	9	4.0	1.0	9	29.66	9.48	9	6.06	2.13
COLD W/ HOT STARTS							MEAN ODOMETER = 26807						PERCENT FAIL = 100											
	2	493	30	2	1.85	0.10	2	2248	310	2	557	81	2	1.88	0.12	2	2166	279	2	5.4	0.4	2	34.49	0.36	2	5.84	0.08
HOT STARTS																								
	2	396	154	2	1.36	0.51	2	1951	691															
DIFFERENCE (HOT - COLD)																								
	2	-97	123	2	-0.49	0.41	2	-297	1001															
C11																								
COLD STARTS							MEAN ODOMETER = 33770						PERCENT FAIL = 80											
	10	239	123	10	1.18	0.83	10	2145	559	10	291	143	10	1.69	0.68	10	1919	446	10	2.9	1.3	10	32.05	11.70	10	5.16	1.10
COLD W/ HOT STARTS							MEAN ODOMETER = 18691						PERCENT FAIL = 100											
	3	318	218	3	1.92	1.31	3	1856	569	3	382	260	3	2.28	1.01	3	1676	428	3	3.7	2.3	3	41.86	15.47	3	4.41	1.20
HOT STARTS																								
	3	300	174	3	1.68	0.96	3	1888	401															
DIFFERENCE (HOT - COLD)																								
	3	-18	44	3	-0.23	0.44	3	32	219															
C12																								
COLD STARTS							MEAN ODOMETER = 42243						PERCENT FAIL = 100											
	9	293	154	9	1.61	0.57	9	1864	714	9	319	104	9	2.06	0.43	9	1571	576	9	3.9	1.4	9	47.38	11.49	9	5.36	2.36
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0											
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																								
	0	0	0	0	0.0	0.0	0	0	0															
DIFFERENCE (HOT - COLD)																								
	0	0	0	0	0.0	0.0	0	0	0															
C13																								
COLD STARTS							MEAN ODOMETER = 41922						PERCENT FAIL = 88											
	9	263	75	9	2.07	1.27	9	1709	607	9	307	92	9	2.28	1.29	9	1602	606	9	4.1	1.2	9	56.99	31.96	9	5.78	2.37
COLD W/ HOT STARTS							MEAN ODOMETER = 42446						PERCENT FAIL = 100											
	1	407	0	1	4.43	0.0	1	796	0	1	479	0	1	4.54	0.0	1	731	0	1	6.5	0.0	1	116.13	0.0	1	2.72	0.0
HOT STARTS																								
	1	296	0	1	3.82	0.0	1	1004	0															
DIFFERENCE (HOT - COLD)																								
	1	-111	0	1	-0.61	0.0	1	208	0															
C14																								
COLD STARTS							MEAN ODOMETER = 32660						PERCENT FAIL = 88											
	9	418	382	9	2.32	0.91	9	1379	622	9	498	539	9	2.59	0.95	9	1269	585	9	6.8	7.4	9	64.92	20.86	9	4.75	2.43
COLD W/ HOT STARTS							MEAN ODOMETER = 44650						PERCENT FAIL = 100											
	1	1381	0	1	2.28	0.0	1	1881	0	1	1900	0	1	2.30	0.0	1	1809	0	1	25.8	0.0	1	58.98	0.0	1	6.63	0.0
HOT STARTS																								
	1	2188	0	1	1.44	0.0	1	2212	0															
DIFFERENCE (HOT - COLD)																								
	1	807	0	1	-0.84	0.0	1	331	0															

KANSAS CITY, PHASE 3

CYCLES 6-7						COMPOSITE						MASS EQUIVALENT					
HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD
CHRY																	
COLD STARTS				MEAN ODOMETER = 37544					PERCENT FAIL = 89								
37	301 216	37	1.78 0.99	37	1784 663	37	352 285	37	2.14 0.92	37	1599 581	37	4.4 3.9	37	49.84 23.37	37	5.31 2.16
COLD W/ HOT STARTS				MEAN ODOMETER = 28634					PERCENT FAIL = 100								
5	548 491	5	2.49 1.43	5	1649 624	5	705 694	5	2.73 1.24	5	1514 535	5	8.7 9.8	5	60.14 33.98	5	4.52 1.63
HOT STARTS																	
5	676 853	5	2.06 1.20	5	1776 535												
DIFFERENCE (HOT - COLD)																	
5	128 382	5	-0.43 0.42	5	127 206												
F31																	
COLD STARTS				MEAN ODOMETER = 37491					PERCENT FAIL = 44								
9	238 54	9	1.35 1.34	9	2285 764	9	263 62	9	1.61 1.36	9	2139 712	9	2.8 0.8	9	33.24 30.24	9	6.19 2.09
COLD W/ HOT STARTS				MEAN ODOMETER = 39010					PERCENT FAIL = 25								
4	245 71	4	2.03 1.90	4	2205 1203	4	268 84	4	2.27 1.92	4	2068 1119	4	3.0 1.1	4	47.86 42.90	4	5.87 3.19
HOT STARTS																	
4	274 117	4	2.53 3.02	4	2128 1327												
DIFFERENCE (HOT - COLD)																	
4	29 45	4	0.49 1.12	4	-77 132												
F32																	
COLD STARTS				MEAN ODOMETER = 25102					PERCENT FAIL = 69								
13	248 68	13	1.38 1.15	13	2008 893	13	276 80	13	1.54 1.15	13	1892 826	13	2.7 0.6	13	27.46 17.66	13	5.33 2.44
COLD W/ HOT STARTS				MEAN ODOMETER = 22807					PERCENT FAIL = 50								
2	250 41	2	0.54 0.01	2	2170 1184	2	266 41	2	0.78 0.21	2	2021 1040	2	2.7 0.4	2	15.05 4.10	2	5.33 2.82
HOT STARTS																	
2	270 71	2	0.48 0.01	2	2188 1363												
DIFFERENCE (HOT - COLD)																	
2	20 29	2	-0.06 0.0	2	17 178												
F33																	
COLD STARTS				MEAN ODOMETER = 38050					PERCENT FAIL = 81								
11	547 784	11	1.10 0.47	11	1828 613	11	571 771	11	1.29 0.49	11	1749 491	11	7.1 9.8	11	29.71 11.35	11	5.71 1.50
COLD W/ HOT STARTS				MEAN ODOMETER = 35234					PERCENT FAIL = 100								
4	340 85	4	1.29 0.10	4	1955 700	4	374 187	4	1.46 0.15	4	1831 684	4	4.6 2.5	4	33.10 1.95	4	5.74 2.18
HOT STARTS																	
4	342 140	4	1.08 0.17	4	2075 848												
DIFFERENCE (HOT - COLD)																	
4	2 53	4	-0.21 0.17	4	120 284												
F34																	
COLD STARTS				MEAN ODOMETER = 28457					PERCENT FAIL = 70								
10	279 49	10	1.01 0.39	10	2123 289	10	316 60	10	1.24 0.34	10	1963 283	10	3.8 0.8	10	27.98 7.06	10	6.43 1.33
COLD W/ HOT STARTS				MEAN ODOMETER = 28712					PERCENT FAIL = 100								
1	299 0	1	1.27 0.0	1	1826 0	1	339 0	1	1.58 0.0	1	1556 0	1	3.9 0.0	1	34.33 0.0	1	4.99 0.0
HOT STARTS																	
1	275 0	1	0.96 0.0	1	1754 0												
DIFFERENCE (HOT - COLD)																	
1	-24 0	1	-0.31 0.0	1	-72 0												

KANSAS CITY, PHASE 3

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT											
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI			CO GM/MI			NOXC GM/MI					
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
F35																								
COLD STARTS							MEAN ODOMETER = 35563						PERCENT FAIL = 66											
	9	230	52	9	1.49	0.79	9	1938	548	9	263	59	9	1.73	0.73	9	1780	461	9	3.4	0.7	9	42.86	14.30	9	6.28	1.80
COLD W/ HOT STARTS							MEAN ODOMETER = 32471						PERCENT FAIL = 0											
	1	149	0	1	0.18	0.0	1	2262	0	1	167	0	1	0.42	0.0	1	2088	0	1	2.1	0.0	1	10.00	0.0	1	7.01	0.0
HOT STARTS																								
	1	165	0	1	0.16	0.0	1	2415	0															
DIFFERENCE (HOT - COLD)																								
	1	16	0	1	-0.02	0.0	1	253	0															
F36																								
COLD STARTS							MEAN ODOMETER = 33117						PERCENT FAIL = 100											
	9	275	75	9	2.12	0.88	9	1036	360	9	305	71	9	2.23	0.71	9	993	264	9	4.3	1.0	9	59.73	19.63	9	4.47	1.11
COLD W/ HOT STARTS							MEAN ODOMETER = 27570						PERCENT FAIL = 100											
	3	231	83	3	1.90	0.62	3	1157	371	3	266	75	3	2.11	0.28	3	1063	263	3	3.8	1.1	3	56.18	9.10	3	4.34	0.86
HOT STARTS																								
	3	201	68	3	1.69	0.70	3	1237	349															
DIFFERENCE (HOT - COLD)																								
	3	-30	14	3	-0.21	0.30	3	80	112															
FORD																								
COLD STARTS							MEAN ODOMETER = 32541						PERCENT FAIL = 72											
	61	307	344	61	1.39	0.93	61	1887	718	61	334	339	61	1.59	0.90	61	1765	644	61	4.1	4.4	61	35.83	20.87	61	5.72	1.86
COLD W/ HOT STARTS							MEAN ODOMETER = 32432						PERCENT FAIL = 66											
	15	265	112	15	1.44	1.10	15	1702	837	15	294	116	15	1.65	1.09	15	1765	780	15	3.9	1.6	15	37.79	25.41	15	5.48	2.10
HOT STARTS																								
	15	270	107	15	1.44	1.64	15	1944	917															
DIFFERENCE (HOT - COLD)																								
	15	4	41	15	0.00	0.62	15	41	164															
G51																								
COLD STARTS							MEAN ODOMETER = 38924						PERCENT FAIL = 88											
	9	267	58	9	1.85	0.95	9	1221	288	9	332	93	9	2.35	0.79	9	1107	257	9	3.8	0.9	9	50.53	17.64	9	3.36	0.72
COLD W/ HOT STARTS							MEAN ODOMETER = 37677						PERCENT FAIL = 100											
	3	227	60	3	1.98	1.39	3	1226	491	3	309	35	3	2.50	1.10	3	1148	430	3	3.6	0.4	3	54.37	23.95	3	3.39	1.22
HOT STARTS																								
	3	234	86	3	1.48	1.05	3	1366	415															
DIFFERENCE (HOT - COLD)																								
	3	7	26	3	-0.50	0.36	3	140	77															
G52																								
COLD STARTS							MEAN ODOMETER = 29856						PERCENT FAIL = 41											
	12	193	160	12	0.85	0.44	12	1513	429	12	222	139	12	1.33	0.49	12	1367	355	12	2.7	1.6	12	30.36	11.79	12	4.34	1.23
COLD W/ HOT STARTS							MEAN ODOMETER = 28782						PERCENT FAIL = 25											
	4	269	279	4	0.54	0.26	4	1522	633	4	269	237	4	0.92	0.30	4	1414	520	4	3.1	2.7	4	20.66	7.33	4	4.49	1.80
HOT STARTS																								
	4	244	215	4	0.63	0.41	4	1296	582															
DIFFERENCE (HOT - COLD)																								
	4	-25	67	4	0.09	0.28	4	-225	66															

KANSAS CITY, PHASE 3

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
GS3																					
COLD STARTS					MEAN ODOMETER = 34234						PERCENT FAIL = 90										
	10	379	162	10	1.93	1.17	10	1694	385	10	401	151	10	2.24	1.11	10	1580	340	10	5.0	1.9	10	51.14	23.40	10	5.19	1.34
COLD W/ HOT STARTS					MEAN ODOMETER = 39909						PERCENT FAIL = 100										
	3	450	236	3	2.07	0.63	3	1540	164	3	467	230	3	2.37	0.66	3	1472	229	3	5.8	3.0	3	55.01	16.73	3	4.72	0.81
HOT STARTS																					
	3	1014	1221	3	1.90	0.61	3	1525	184												
DIFFERENCE (HOT - COLD)																					
	3	564	987	3	-0.18	0.02	3	-14	31												
GS4																					
COLD STARTS					MEAN ODOMETER = 38716						PERCENT FAIL = 100										
	9	347	111	9	2.84	2.38	9	1130	694	9	386	132	9	3.10	2.29	9	1050	623	9	5.1	1.9	9	77.66	56.81	9	3.63	2.06
COLD W/ HOT STARTS					MEAN ODOMETER = 42563						PERCENT FAIL = 100										
	1	299	0	1	6.61	0.0	1	195	0	1	352	0	1	6.84	0.0	1	100	0	1	4.5	0.0	1	162.96	0.0	1	0.34	0.0
HOT STARTS																					
	1	285	0	1	6.24	0.0	1	107	0												
DIFFERENCE (HOT - COLD)																					
	1	-14	0	1	-0.37	0.0	1	2	0												
GS5																					
COLD STARTS					MEAN ODOMETER = 27473						PERCENT FAIL = 88										
	9	256	71	9	1.41	0.36	9	1728	355	9	286	63	9	2.00	0.39	9	1730	306	9	3.7	0.9	9	49.04	10.42	9	6.02	1.11
COLD W/ HOT STARTS					MEAN ODOMETER = 0						PERCENT FAIL = 0										
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
GS6																					
COLD STARTS					MEAN ODOMETER = 33289						PERCENT FAIL = 71										
	7	260	61	7	2.27	1.42	7	1465	450	7	291	65	7	2.55	1.47	7	904	404	7	3.8	0.9	7	63.20	38.34	7	3.09	1.32
COLD W/ HOT STARTS					MEAN ODOMETER = 0						PERCENT FAIL = 0										
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
CHEV																					
COLD STARTS					MEAN ODOMETER = 33565						PERCENT FAIL = 76										
	56	281	131	56	1.79	1.39	56	1435	536	56	317	129	56	2.20	1.30	56	1313	472	56	4.0	1.7	56	51.92	32.11	56	4.34	1.64
COLD W/ HOT STARTS					MEAN ODOMETER = 35494						PERCENT FAIL = 72										
	11	310	209	11	1.90	1.86	11	1317	595	11	341	186	11	2.29	1.79	11	1238	538	11	4.1	2.3	11	52.16	42.60	11	3.88	1.76
HOT STARTS																					
	11	455	665	11	1.72	1.70	11	1270	968												
DIFFERENCE (HOT - COLD)																					
	11	145	518	11	-0.19	0.34	11	-47	162												

KANSAS CITY, PHASE 3

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT					
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD
G61																		
COLD STARTS						MEAN ODOMETER = 32755				PERCENT FAIL = 55								
	9	196 31	9	1.22 0.49	9	1641 364	9	219 42	9	1.47 0.51	9	1522 354	9	2.7 0.5	9	33.87 11.56	9	5.31 2.10
COLD W/ HOT STARTS						MEAN ODOMETER = 31204				PERCENT FAIL = 60								
	5	201 31	5	1.30 0.45	5	1646 285	5	222 38	5	1.59 0.35	5	1544 255	5	2.8 0.5	5	37.21 8.32	5	4.97 0.81
HOT STARTS																		
	5	201 27	5	1.15 0.37	5	1812 283												
DIFFERENCE (HOT - COLD)																		
	5	0 11	5	-0.15 0.09	5	116 194												
G62																		
COLD STARTS						MEAN ODOMETER = 29128				PERCENT FAIL = 66								
	9	205 47	9	1.09 0.38	9	1439 441	9	225 51	9	1.38 0.48	9	1347 260	9	3.0 0.7	9	34.90 12.23	9	5.17 1.15
COLD W/ HOT STARTS						MEAN ODOMETER = 21751				PERCENT FAIL = 100								
	1	268 0	1	1.38 0.0	1	1534 0	1	273 0	1	1.52 0.0	1	1405 0	1	3.7 0.0	1	38.88 0.0	1	7.42 0.0
HOT STARTS																		
	1	249 0	1	1.57 0.0	1	1451 0												
DIFFERENCE (HOT - COLD)																		
	1	-19 0	1	0.19 0.0	1	-83 0												
G63																		
COLD STARTS						MEAN ODOMETER = 29158				PERCENT FAIL = 75								
	8	303 105	8	1.51 0.99	8	1589 535	8	323 106	8	1.99 0.99	8	1415 469	8	4.4 1.5	8	50.69 25.35	8	5.50 2.26
COLD W/ HOT STARTS						MEAN ODOMETER = 30250				PERCENT FAIL = 100								
	1	468 0	1	3.29 0.0	1	926 0	1	490 0	1	3.31 0.0	1	849 0	1	6.7 0.0	1	97.70 0.0	1	2.99 0.0
HOT STARTS																		
	1	444 0	1	3.27 0.0	1	966 0												
DIFFERENCE (HOT - COLD)																		
	1	-24 0	1	-0.02 0.0	1	40 0												
PONT																		
COLD STARTS						MEAN ODOMETER = 30393				PERCENT FAIL = 65								
	26	232 80	26	1.27 0.66	26	1555 439	26	253 82	26	1.60 0.71	26	1428 359	26	3.3 1.2	26	39.46 18.20	26	5.32 1.81
COLD W/ HOT STARTS						MEAN ODOMETER = 29717				PERCENT FAIL = 71								
	7	249 102	7	1.60 0.83	7	1563 369	7	268 104	7	1.90 0.89	7	1425 332	7	3.5 1.5	7	46.09 23.76	7	5.04 1.45
HOT STARTS																		
	7	243 93	7	1.51 0.85	7	1640 400												
DIFFERENCE (HOT - COLD)																		
	7	-6 14	7	-0.08 0.15	7	77 175												
G66																		
COLD STARTS						MEAN ODOMETER = 31281				PERCENT FAIL = 90								
	10	240 75	10	1.61 0.51	10	1242 209	10	273 80	10	1.97 0.64	10	1150 191	10	3.5 1.0	10	47.72 14.80	10	4.23 0.80
COLD W/ HOT STARTS						MEAN ODOMETER = 27394				PERCENT FAIL = 100								
	5	206 72	5	1.42 0.29	5	1351 123	5	237 67	5	1.92 0.35	5	1222 107	5	3.1 0.8	5	46.97 7.35	5	4.20 0.43
HOT STARTS																		
	5	218 109	5	1.18 0.36	5	1404 194												
DIFFERENCE (HOT - COLD)																		
	5	11 38	5	-0.24 0.21	5	53 77												

KANSAS CITY, PHASE 3

	CYCLES 6 7						COMPOSITE						MASS EQUIVALENT					
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
	N MEAN	STD	N MEAN	STD	N MEAN	STD	N MEAN	STD	N MEAN	STD	N MEAN	STD	N MEAN	STD	N MEAN	STD	N MEAN	STD
G67																		
COLD STARTS					MEAN ODOMETER = 42826						PERCENT FAIL = 44							
9 227	57	9	1.79	1.83	9 1274	507	9 239	58	9 1.94	1.77	9 1198	541	9 3.3	0.8	9	49.56	45.16	9 5.14 2.07
COLD W/ HOT STARTS					MEAN ODOMETER = 0						PERCENT FAIL = 0							
0 0	0	0	0.0	0.0	0	0	0	0	0	0	0 0.0	0.0	0	0	0	0 0.0	0.0	0 0.0 0.0
HOT STARTS																		
0 0	0	0	0.0	0.0	0	0	0											
DIFFERENCE (HOT - COLD)																		
0 0	0	0	0.0	0.0	0	0	0											
OLDS																		
COLD STARTS					MEAN ODOMETER = 36750						PERCENT FAIL = 68							
19 233	65	19	1.69	1.28	19 1257	418	19 257	70	19 1.95	1.26	19 1173	384	19 3.4	0.9	19	48.59	31.89	19 4.66 1.56
COLD W/ HOT STARTS					MEAN ODOMETER = 27394						PERCENT FAIL = 100							
5 206	72	5	1.42	0.29	5 1351	123	5 237	67	5 1.92	0.35	5 1222	107	5 3.1	0.8	5	46.97	7.35	5 4.20 0.43
HOT STARTS																		
5 218	109	5	1.18	0.36	5 1404	194												
DIFFERENCE (HOT - COLD)																		
5 11	38	5	-0.24	0.21	5	53	77											
G71																		
COLD STARTS					MEAN ODOMETER = 37510						PERCENT FAIL = 71							
7 277	98	7	2.01	0.98	7 1491	513	7 292	89	7 2.27	1.02	7 1395	473	7 4.0	1.2	7	58.10	26.16	7 5.58 2.06
COLD W/ HOT STARTS					MEAN ODOMETER = 0						PERCENT FAIL = 0							
0 0	0	0	0.0	0.0	0	0	0	0	0	0	0 0.0	0.0	0	0	0	0 0.0	0.0	0 0.0 0.0
HOT STARTS																		
0 0	0	0	0.0	0.0	0	0	0											
DIFFERENCE (HOT - COLD)																		
0 0	0	0	0.0	0.0	0	0	0											
G7.																		
COLD STARTS					MEAN ODOMETER = 39933						PERCENT FAIL = 77							
9 241	88	9	1.63	0.69	9 1408	539	9 259	69	9 2.03	0.50	9 1657	390	9 3.5	0.9	9	51.93	12.84	9 6.04 1.27
COLD W/ HOT STARTS					MEAN ODOMETER = 34390						PERCENT FAIL = 0							
1 203	0	1	0.50	0.0	1 2100	0	1 237	0	1 1.27	0.0	1 2003	0	1 3.2	0.0	1	32.56	0.0	1 7.17 0.0
HOT STARTS																		
1 216	0	1	0.50	0.0	1 2217	0												
DIFFERENCE (HOT - COLD)																		
1 13	0	1	0.0	0.0	1 -83	0												
AUTC																		
COLD STARTS					MEAN ODOMETER = 38873						PERCENT FAIL = 75							
16 257	91	16	1.80	0.83	16 1670	535	16 274	77	16 2.13	0.75	16 1542	434	16 3.7	1.1	16	54.63	19.28	16 5.84 1.61
COLD W/ HOT STARTS					MEAN ODOMETER = 34390						PERCENT FAIL = 0							
1 203	0	1	0.50	0.0	1 2100	0	1 237	0	1 1.27	0.0	1 2003	0	1 3.2	0.0	1	32.56	0.0	1 7.17 0.0
HOT STARTS																		
1 216	0	1	0.50	0.0	1 2217	0												
DIFFERENCE (HOT - COLD)																		
1 13	0	1	0.0	0.0	1 -83	0												

KANSAS CITY, PHASE 3

CYCLES 6-7									COMPOSITE									MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G76																										
COLD STARTS						MEAN ODOMETER = 43742									PERCENT FAIL = 50											
8	166	47	8	1.26	0.35	8	1445	425	8	183	46	8	1.48	0.35	8	1357	388	8	2.6	0.7	8	40.06	9.35	8	5.77	2.10
COLD W/ HOT STARTS						MEAN ODOMETER = 0									PERCENT FAIL = 0											
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
C.M.																										
COLD STARTS						MEAN ODOMETER = 34720									PERCENT FAIL = 72											
125	253	108	125	1.63	1.15	125	1464	501	125	280	109	125	1.98	1.11	125	1348	435	125	3.6	1.4	125	48.41	27.45	125	4.87	1.77
COLD W/ HOT STARTS						MEAN ODOMETER = 32075									PERCENT FAIL = 75											
24	266	157	24	1.65	1.34	24	1437	488	24	294	144	24	2.05	1.30	24	1321	431	24	3.7	1.8	24	48.49	31.07	24	4.42	1.59
HOT STARTS																										
24	334	458	24	1.49	1.25	24	1445	481																		
DIFFERENCE (HOT - COLD)																										
24	67	350	24	-0.16	0.26	24	8	156																		
V81																										
COLD STARTS						MEAN ODOMETER = 30862									PERCENT FAIL = 77											
9	463	173	9	2.03	0.93	9	1253	282	9	475	159	9	2.18	0.87	9	1267	248	9	3.1	1.0	9	26.65	10.35	9	2.32	0.55
COLD W/ HOT STARTS						MEAN ODOMETER = 0									PERCENT FAIL = 0											
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
V82																										
COLD STARTS						MEAN ODOMETER = 35373									PERCENT FAIL = 30											
10	407	384	10	1.02	0.74	10	1511	810	10	417	326	10	1.04	0.61	10	1508	812	10	3.4	2.7	10	15.97	8.85	10	3.59	2.30
COLD W/ HOT STARTS						MEAN ODOMETER = 24814									PERCENT FAIL = 100											
1	726	0	1	0.28	0.0	1	1138	0	1	823	0	1	0.28	0.0	1	1261	0	1	7.3	0.0	1	4.64	0.0	1	2.98	0.0
HOT STARTS																										
1	452	0	1	0.25	0.0	1	999	0																		
DIFFERENCE (HOT - COLD)																										
1	-274	0	1	-0.03	0.0	1	-139	0																		
VOLK																										
COLD STARTS						MEAN ODOMETER = 33236									PERCENT FAIL = 52											
19	434	297	19	1.50	0.96	19	1388	617	19	444	255	19	1.58	0.93	19	1394	610	19	3.3	2.0	19	21.03	10.81	19	2.99	1.79
COLD W/ HOT STARTS						MEAN ODOMETER = 24814									PERCENT FAIL = 100											
1	726	0	1	0.28	0.0	1	1138	0	1	823	0	1	0.28	0.0	1	1261	0	1	7.3	0.0	1	4.64	0.0	1	2.98	0.0
HOT STARTS																										
1	452	0	1	0.25	0.0	1	999	0																		
DIFFERENCE (HOT - COLD)																										
1	-274	0	1	-0.03	0.0	1	-139	0																		

V-49

KANSAS CITY, PHASE 3

CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
TOT																										
COLD STARTS						MEAN ODOMETER = 34150						PERCENT FAIL = 74														
251	290	224	251	1.58	1.05	251	1627	672	251	320	229	251	1.86	1.02	251	1511	558	251	3.8	2.9	251	42.82	25.41	251	5.04	1.98
COLD W/ HOT STARTS						MEAN ODOMETER = 31444						PERCENT FAIL = 76														
47	315	224	47	1.65	1.26	47	1636	658	47	360	282	47	1.95	1.22	47	1518	603	47	4.3	3.7	47	44.78	29.46	47	4.80	1.78
HOT STARTS																										
47	355	431	47	1.50	1.34	47	1652	687																		
DIFFERENCE (HOT - COLD)																										
47	39	281	47	-0.15	0.44	47	15	278																		

250 V

TABLE C-4

Houston

Phase I

HOUSTON, PHASE 1

CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
A01																										
COLD STARTS						MEAN ODOMETER = 23396						PERCENT FAIL = 93														
15	300	53	15	1.63	1.17	15	1554	560	15	326	52	15	1.79	1.13	15	1438	503	15	3.2	0.5	15	33.63	20.86	15	4.74	1.57
COLD W/ HOT STARTS						MEAN ODOMETER = 9081						PERCENT FAIL = 100														
2	372	74	2	1.18	1.17	2	1727	883	2	373	64	2	1.40	1.17	2	1621	859	2	3.4	0.6	2	24.42	20.25	2	4.40	2.15
HOT STARTS																										
2	304	112	2	1.06	1.00	2	1240	82																		
DIFFERENCE (HOT - COLD)																										
2	-67	37	2	-0.12	0.17	2	-487	800																		
C11																										
COLD STARTS						MEAN ODOMETER = 23664						PERCENT FAIL = 59														
17	231	66	17	1.45	0.99	15	1620	707	17	299	165	17	1.91	1.01	14	1562	512	17	3.0	1.5	17	36.93	19.50	14	5.22	1.89
COLD W/ HOT STARTS						MEAN ODOMETER = 26207						PERCENT FAIL = 0														
1	210	0	1	0.88	0.0	1	1440	0	1	237	0	1	1.13	0.0	1	1380	0	1	2.2	0.0	1	19.94	0.0	1	4.36	0.0
HOT STARTS																										
1	259	0	1	0.91	0.0	1	1286	0																		
DIFFERENCE (HOT - COLD)																										
1	49	0	1	0.03	0.0	1	-54	0																		
C12																										
COLD STARTS						MEAN ODOMETER = 26477						PERCENT FAIL = 71														
17	455	594	17	1.30	1.27	13	1614	653	17	466	562	17	1.67	1.18	13	1416	567	17	5.6	6.5	17	38.01	26.18	13	5.69	2.28
COLD W/ HOT STARTS						MEAN ODOMETER = 20320						PERCENT FAIL = 83														
6	404	180	6	1.03	0.95	4	1627	241	6	409	155	6	1.34	0.94	4	1452	226	6	5.0	2.0	6	30.70	21.68	4	5.61	0.75
HOT STARTS																										
6	239	75	6	0.88	0.82	4	1257	512																		
DIFFERENCE (HOT - COLD)																										
6	-164	207	6	-0.15	0.22	4	-370	462																		
C13																										
COLD STARTS						MEAN ODOMETER = 31476						PERCENT FAIL = 82														
17	293	110	18	1.87	1.16	15	1441	490	17	332	129	18	2.11	1.13	15	1342	440	17	4.4	1.8	18	51.75	29.01	15	5.73	1.86
COLD W/ HOT STARTS						MEAN ODOMETER = 36140						PERCENT FAIL = 100														
2	437	249	2	1.67	0.96	2	1470	140	2	520	318	2	1.83	0.83	2	1456	200	2	7.0	4.6	2	44.78	19.37	2	6.43	0.47
HOT STARTS																										
2	511	375	2	1.51	0.89	2	1677	313																		
DIFFERENCE (HOT - COLD)																										
2	74	125	2	-0.16	0.07	2	187	453																		
C14																										
COLD STARTS						MEAN ODOMETER = 25573						PERCENT FAIL = 93														
15	303	155	15	2.59	1.80	14	783	424	15	353	182	15	2.94	1.73	14	883	407	15	4.8	2.4	15	74.62	43.86	14	3.90	1.91
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0														
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		

HOUSTON, PHASE 1

	CYCLES 6-7								COMPOSITE								MASS EQUIVALENT							
	HC PPM		CO PERCENT			NO PPM			HC PPM		CO PERCENT			NO PPM			HC GM/MI		CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
CHRY																								
COLD STARTS						MEAN ODOMETER = 26904						PERCENT FAIL = 76												
	66	321	321	67	1.78	1.38	57	1415	621	66	363	316	67	2.13	1.33	56	1300	535	66	4.4	3.7	67	49.63	33.21	56	5.13	2.07
COLD W/ HOT STARTS						MEAN ODOMETER = 24830						PERCENT FAIL = 77												
	9	390	181	9	1.15	0.88	7	1547	241	9	414	185	9	1.43	0.84	7	1443	182	9	5.1	2.6	9	32.60	19.92	7	5.67	0.20
HOT STARTS																								
	9	302	187	9	1.02	0.77	7	1381	434															
DIFFERENCE (HOT - COLD)																								
	9	-88	205	9	-0.13	0.18	7	-165	461															
F31																								
COLD STARTS						MEAN ODOMETER = 30239						PERCENT FAIL = 33												
	15	301	210	15	0.90	0.54	13	2114	441	15	335	270	15	1.06	0.42	13	2026	407	15	3.6	3.2	15	21.23	8.51	13	7.55	2.07
COLD W/ HOT STARTS						MEAN ODOMETER = 31558						PERCENT FAIL = 0												
	1	230	0	1	0.48	0.0	1	2852	0	1	255	0	1	0.95	0.0	1	2637	0	1	2.6	0.0	1	18.36	0.0	1	9.54	0.0
HOT STARTS																								
	1	283	0	1	1.22	0.0	1	2614	0															
DIFFERENCE (HOT - COLD)																								
	1	53	0	1	0.74	0.0	1	-239	0															
F32																								
COLD STARTS						MEAN ODOMETER = 11401						PERCENT FAIL = 53												
	19	261	73	19	1.20	0.85	19	1746	568	19	281	78	19	1.44	0.94	19	1609	533	19	2.7	0.7	19	25.68	16.14	19	4.94	1.73
COLD W/ HOT STARTS						MEAN ODOMETER = 3189						PERCENT FAIL = 100												
	1	349	0	1	2.03	0.0	1	1544	0	1	392	0	1	2.19	0.0	1	1446	0	1	4.0	0.0	1	42.28	0.0	1	5.04	0.0
HOT STARTS																								
	1	263	0	1	1.53	0.0	1	1710	0															
DIFFERENCE (HOT - COLD)																								
	1	-86	0	1	-0.50	0.0	1	166	0															
F33																								
COLD STARTS						MEAN ODOMETER = 25152						PERCENT FAIL = 88												
	17	367	152	17	1.01	0.49	15	1902	362	17	387	140	17	1.20	0.55	15	1733	350	17	4.8	2.0	17	28.03	13.96	15	7.37	1.26
COLD W/ HOT STARTS						MEAN ODOMETER = 24839						PERCENT FAIL = 100												
	4	439	270	4	1.01	0.56	3	1458	536	4	445	227	4	1.22	0.65	3	1362	460	4	5.7	3.3	4	28.36	13.37	3	5.98	2.14
HOT STARTS																								
	4	368	171	4	1.03	0.76	3	2052	338															
DIFFERENCE (HOT - COLD)																								
	4	-70	374	4	0.02	0.40	3	593	867															
F34																								
COLD STARTS						MEAN ODOMETER = 17624						PERCENT FAIL = 87												
	15	317	119	15	1.42	0.55	13	1587	431	15	348	123	15	1.80	0.71	13	1421	471	15	4.3	1.6	15	41.63	17.39	13	5.70	1.93
COLD W/ HOT STARTS						MEAN ODOMETER = 10231						PERCENT FAIL = 100												
	2	421	241	2	1.22	1.03	1	1588	0	2	463	261	2	1.55	0.68	1	1437	0	2	6.3	3.6	2	39.87	22.67	1	6.83	0.0
HOT STARTS																								
	2	331	72	2	0.89	0.65	1	1595	0															
DIFFERENCE (HOT - COLD)																								
	2	-90	168	2	-0.34	0.37	1	7	0															

HOUSTON, PHASE 1

CYCLES 6-7								COMPOSITE								MASS EQUIVALENT							
HC PPM			CO PERCENT			NO PPM		HC PPM			CO PERCENT			NO PPM		HC GM/MI			CO GM/MI			NOXC GM/MI	
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
F35																							
COLD STARTS						MEAN ODOMETER = 24014								PERCENT FAIL = 67									
15	253	69	15	1.38	0.81	12	1229	369	15	308	194	15	1.64	1.00	12	1143	351	15	4.1	2.4	15	40.74	24.26	12	4.96	1.39
COLD W/ HOT STARTS						MEAN ODOMETER = 26375								PERCENT FAIL = 100									
3	273	17	3	1.32	0.16	3	1417	129	3	298	21	3	1.65	0.24	3	1289	121	3	4.1	0.3	3	42.39	6.25	3	5.82	0.90
HOT STARTS																							
3	271	46	3	1.22	0.56	3	1750	103															
DIFFERENCE (HOT - COLD)																							
3	-2	49	3	-0.10	0.42	3	333	134															
F36																							
COLD STARTS						MEAN ODOMETER = 23981								PERCENT FAIL = 93									
15	326	302	15	2.29	0.74	11	1207	271	15	353	287	15	2.50	0.73	11	1127	225	15	5.1	4.2	15	66.98	19.83	11	5.33	1.11
COLD W/ HOT STARTS						MEAN ODOMETER = 21718								PERCENT FAIL = 100									
3	630	668	3	2.65	0.56	2	1685	114	3	631	630	3	2.98	0.82	2	1519	65	3	9.0	9.2	3	79.17	22.13	2	7.26	0.28
HOT STARTS																							
3	256	129	3	2.16	0.20	2	1398	168															
DIFFERENCE (HOT - COLD)																							
3	-374	540	3	-0.49	0.37	2	-287	53															
FORD																							
COLD STARTS						MEAN ODOMETER = 22121								PERCENT FAIL = 70									
96	304	171	96	1.35	0.80	83	1657	514	96	334	170	76	1.59	0.87	83	1547	511	96	4.0	2.6	96	36.70	22.55	83	5.96	1.93
COLD W/ HOT STARTS						MEAN ODOMETER = 21346								PERCENT FAIL = 92									
14	420	329	14	1.49	0.84	11	1634	485	14	438	307	14	1.79	0.88	11	1501	441	14	5.8	4.5	14	44.18	24.02	11	6.49	1.59
HOT STARTS																							
14	304	111	14	1.34	0.67	11	1829	397															
DIFFERENCE (HOT - COLD)																							
14	-116	318	14	-0.15	0.46	11	194	529															
G51																							
COLD STARTS						MEAN ODOMETER = 26418								PERCENT FAIL = 67									
15	224	60	15	1.04	0.54	14	1389	508	15	265	73	15	1.55	0.60	14	1250	444	15	3.1	0.9	15	33.74	13.05	14	4.88	1.67
COLD W/ HOT STARTS						MEAN ODOMETER = 0								PERCENT FAIL = 0									
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																							
0	0	0	0	0.0	0.0	0	0																
DIFFERENCE (HOT - COLD)																							
0	0	0	0	0.0	0.0	0	0	0															
G52																							
COLD STARTS						MEAN ODOMETER = 23162								PERCENT FAIL = 31									
16	219	214	16	0.71	0.41	15	1266	569	16	236	198	16	1.15	0.49	15	1146	498	16	2.8	2.3	16	25.13	10.63	15	4.42	1.70
COLD W/ HOT STARTS						MEAN ODOMETER = 26064								PERCENT FAIL = 0									
4	118	39	4	0.40	0.15	3	415	82	4	137	40	4	0.75	0.28	3	753	68	4	1.6	0.5	4	16.32	6.13	3	2.82	0.48
HOT STARTS																							
4	156	55	4	0.44	0.20	3	318	462															
DIFFERENCE (HOT - COLD)																							
4	38	24	4	0.05	0.12	3	103	416															

HOUSTON, PHASE 1

CYCLES 6-7						COMPOSITE						MASS EQUIVALENT					
HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD
G53																	
COLD STARTS				MEAN ODOMETER = 21730					PERCENT FAIL = 74								
19	351 168	19	1.50 0.65	13	1478 412	19	373 156	19	1.82 0.61	13	1408 402	13	4.5 2.0	19	40.36 13.42	13	5.39 1.66
COLD W/ HOT STARTS				MEAN ODOMETER = 26759					PERCENT FAIL = 100								
6	419 88	6	1.93 0.33	2	1773 340	6	447 98	6	1.59 0.32	2	1746 286	6	5.4 1.2	6	36.25 7.65	2	7.00 1.22
HOT STARTS																	
6	314 25	6	0.95 0.28	2	1826 431												
DIFFERENCE (HOT - COLD)																	
6	-104 69	6	-0.37 0.18	2	53 90												
G54																	
COLD STARTS				MEAN ODOMETER = 32565					PERCENT FAIL = 100								
16	515 367	16	3.30 1.19	13	712 295	16	533 324	16	3.60 1.22	13	661 286	16	6.7 4.0	16	85.12 30.58	13	2.65 0.97
COLD W/ HOT STARTS				MEAN ODOMETER = 33716					PERCENT FAIL = 100								
7	590 424	7	3.31 1.59	6	811 374	7	593 359	7	3.59 1.60	6	746 362	7	7.7 4.6	7	88.23 41.01	6	2.99 1.03
HOT STARTS																	
7	306 97	7	2.79 1.70	6	760 291												
DIFFERENCE (HOT - COLD)																	
7	-284 345	7	-0.52 0.38	6	-51 113												
G55																	
COLD STARTS				MEAN ODOMETER = 22815					PERCENT FAIL = 81								
16	301 77	16	1.47 0.68	14	1425 484	16	329 108	16	1.95 0.77	14	1659 462	16	4.2 1.4	16	46.25 18.71	14	6.94 2.02
COLD W/ HOT STARTS				MEAN ODOMETER = 20560					PERCENT FAIL = 100								
4	339 47	4	1.58 0.75	4	1950 212	4	360 56	4	2.00 0.81	4	1663 194	4	4.7 0.8	4	48.48 18.96	4	6.88 0.58
HOT STARTS																	
4	242 38	4	1.31 0.87	4	1692 349												
DIFFERENCE (HOT - COLD)																	
4	-97 50	4	-0.26 0.18	4	-157 356												
G56																	
COLD STARTS				MEAN ODOMETER = 24608					PERCENT FAIL = 87								
15	637 1099	15	2.27 1.13	14	1068 430	15	647 1082	15	2.52 1.04	14	1000 400	15	8.3 13.7	15	61.18 25.69	14	4.48 1.61
COLD W/ HOT STARTS				MEAN ODOMETER = 26038					PERCENT FAIL = 100								
2	2420 3021	2	1.30 0.02	1	1785 0	2	2419 2969	2	1.60 0.20	1	1635 0	2	28.5 37.7	2	38.19 4.73	1	6.93 0.0
HOT STARTS																	
2	2174 2763	2	1.00 0.36	1	1550 0												
DIFFERENCE (HOT - COLD)																	
2	-246 258	2	-0.30 0.38	1	-235 0												
CHEV																	
COLD STARTS				MEAN ODOMETER = 25102					PERCENT FAIL = 73								
97	372 483	97	1.71 1.16	83	1294 564	97	395 470	97	2.09 1.12	83	1191 515	97	4.9 6.0	97	48.40 27.58	83	4.81 2.04
COLD W/ HOT STARTS				MEAN ODOMETER = 28223					PERCENT FAIL = 82								
23	579 911	23	1.81 1.40	16	1252 575	23	594 891	23	2.13 1.40	16	1161 539	23	7.5 11.3	23	50.90 35.53	16	4.68 2.19
HOT STARTS																	
23	433 809	23	1.49 1.33	16	1205 538												
DIFFERENCE (HOT - COLD)																	
23	-145 226	23	-0.32 0.31	16	-47 254												

HOUSTON, PHASE 1

	CYCLES						COMPOSITE						PASS EQUIVALENT					
	HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G61																		
COLD STARTS							MEAN ODOMETER = 22936						PERCENT FAIL = 87					
	16	262	31	16	1.30	0.55	13	1611	341	16	280	31	16	1.65	0.53	13	1467	331
COLD W/ HOT STARTS							MEAN ODOMETER = 11217						PERCENT FAIL = 100					
	2	275	8	2	0.89	0.47	2	1465	201	2	289	8	2	1.13	0.53	2	1715	158
HOT STARTS																		
	2	267	48	2	0.58	0.19	2	2074	171									
DIFFERENCE (HOT - COLD)																		
	2	-8	39	2	-0.30	0.28	2	208	372									
G62																		
COLD STARTS							MEAN ODOMETER = 23971						PERCENT FAIL = 60					
	15	236	64	15	1.22	0.51	12	1512	444	15	254	65	15	1.60	0.47	12	1349	404
COLD W/ HOT STARTS							MEAN ODOMETER = 15107						PERCENT FAIL = 66					
	3	299	132	3	1.53	0.75	2	1787	625	3	322	131	3	1.91	0.65	2	1167	586
HOT STARTS																		
	3	277	21	3	1.24	0.44	2	1655	117									
DIFFERENCE (HOT - COLD)																		
	3	-22	136	3	-0.30	0.31	2	368	507									
G63																		
COLD STARTS							MEAN ODOMETER = 25251						PERCENT FAIL = 100					
	14	343	103	15	2.07	1.09	14	1264	444	14	357	98	15	2.33	0.67	14	1156	398
COLD W/ HOT STARTS							MEAN ODOMETER = 28742						PERCENT FAIL = 100					
	3	431	29	3	3.27	2.04	3	308	641	3	435	43	3	3.29	1.52	3	847	545
HOT STARTS																		
	3	267	61	3	2.56	2.30	3	1022	599									
DIFFERENCE (HOT - COLD)																		
	3	-163	80	3	-0.71	0.54	3	114	98									
PONT																		
COLD STARTS							MEAN ODOMETER = 24028						PERCENT FAIL = 82					
	45	279	83	46	1.53	0.84	39	1456	429	45	295	80	46	1.86	0.72	39	1319	392
COLD W/ HOT STARTS							MEAN ODOMETER = 19323						PERCENT FAIL = 87					
	8	342	103	8	2.02	1.59	7	1289	626	8	356	99	8	2.23	1.30	7	1186	558
HOT STARTS																		
	8	271	39	8	1.57	1.52	7	1503	599									
DIFFERENCE (HOT - COLD)																		
	8	-71	114	8	-0.45	0.41	7	213	283									
G66																		
COLD STARTS							MEAN ODOMETER = 21302						PERCENT FAIL = 87					
	15	279	208	15	1.77	0.73	13	1169	428	15	310	142	15	2.21	0.82	13	1074	391
COLD W/ HOT STARTS							MEAN ODOMETER = 19993						PERCENT FAIL = 100					
	1	370	0	1	3.24	0.0	1	1319	0	1	529	0	1	3.79	0.0	1	1221	0
HOT STARTS																		
	1	227	0	1	2.92	0.0	1	927	0									
DIFFERENCE (HOT - COLD)																		
	1	-143	0	1	-0.32	0.0	1	-472	0									

HOUSTON, PHASE 1

CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G67																										
COLD STARTS						MEAN ODOMETER = 26610						PERCENT FAIL = 73														
15	240	73	15	1.88	1.19	14	1263	432	15	257	83	15	2.21	1.24	14	1157	401	15	3.5	1.1	15	56.75	31.76	14	5.10	1.52
COLD W/ HOT STARTS						MEAN ODOMETER = 33751						PERCENT FAIL = 100														
2	377	33	2	4.49	0.11	1	748	0	2	426	84	2	4.92	0.12	1	629	0	2	5.8	1.2	2	126.30	3.03	1	2.50	0.0
HOT STARTS																										
2	371	59	2	5.10	0.38	1	515	0																		
DIFFERENCE (HOT - COLD)																										
2	-6	92	2	0.61	0.49	1	-739	0																		
OLDS																										
COLD STARTS						MEAN ODOMETER = 23956						PERCENT FAIL = 80														
30	260	155	30	1.82	0.96	27	1218	425	30	284	147	30	2.21	1.03	27	1117	391	30	3.7	1.9	30	54.50	25.96	27	4.74	1.51
COLD W/ HOT STARTS						MEAN ODOMETER = 29164						PERCENT FAIL = 100														
3	375	23	3	4.07	0.73	2	1073	460	3	460	84	3	4.55	0.66	2	975	418	3	6.1	1.0	3	114.36	20.80	2	3.93	2.02
HOT STARTS																										
3	323	93	3	4.37	1.29	2	721	291																		
DIFFERENCE (HOT - COLD)																										
3	-52	102	3	0.30	0.64	2	-352	168																		
G71																										
COLD STARTS						MEAN ODOMETER = 31106						PERCENT FAIL = 100														
15	251	48	15	2.53	1.00	13	1071	312	15	274	50	15	3.05	1.09	13	971	294	15	3.6	0.8	15	74.81	26.09	13	4.33	1.41
COLD W/ HOT STARTS						MEAN ODOMETER = 32396						PERCENT FAIL = 100														
1	271	0	1	3.69	0.0	1	1015	0	1	274	0	1	4.33	0.0	1	857	0	1	3.5	0.0	1	103.37	0.0	1	3.85	0.0
HOT STARTS																										
1	215	0	1	3.62	0.0	1	667	0																		
DIFFERENCE (HOT - COLD)																										
1	-56	0	1	-0.07	0.0	1	-348	0																		
G77																										
COLD STARTS						MEAN ODOMETER = 23017						PERCENT FAIL = 61														
16	225	41	16	1.56	0.64	13	1267	283	16	246	39	16	1.99	0.57	13	1157	243	16	3.4	0.5	16	91.16	14.57	13	5.10	1.01
COLD W/ HOT STARTS						MEAN ODOMETER = 7486						PERCENT FAIL = 100														
1	288	0	1	1.83	0.0	1	1150	0	1	292	0	1	2.28	0.0	1	1037	0	1	4.0	0.0	1	58.47	0.0	1	4.78	0.0
HOT STARTS																										
1	225	0	1	1.74	0.0	1	1157	0																		
DIFFERENCE (HOT - COLD)																										
1	-63	0	1	-0.09	0.0	1	7	0																		
BUIC																										
COLD STARTS						MEAN ODOMETER = 26731						PERCENT FAIL = 90														
31	238	46	31	2.03	0.96	26	1169	308	31	259	46	31	2.50	1.00	26	1064	281	31	3.5	0.7	31	62.60	23.64	26	4.72	1.26
COLD W/ HOT STARTS						MEAN ODOMETER = 19942						PERCENT FAIL = 100														
2	279	12	2	2.76	1.32	2	1062	95	2	283	12	2	3.30	1.45	2	947	127	2	3.7	0.4	2	80.92	31.75	2	4.31	0.66
HOT STARTS																										
2	220	7	2	2.68	1.33	2	912	346																		
DIFFERENCE (HOT - COLD)																										
2	-59	4	2	-0.08	0.01	2	-170	251																		

HOUSTON, PHASE 1

CYCLES 6-7									COMPOSITE								MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G76																										
COLD STARTS						MEAN ODOMETER = 18436							PERCENT FAIL = 20													
15	145	18	15	0.92	0.34	15	1410	314	15	166	15	15	1.25	0.35	15	1318	265	15	2.4	0.2	15	33.74	9.41	15	6.36	1.26
COLD W/ HOT STARTS						MEAN ODOMETER = 0							PERCENT FAIL = 0													
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
G.M.																										
COLD STARTS						MEAN ODOMETER = 24522							PERCENT FAIL = 75													
218	303	336	219	1.68	1.03	190	1308	478	218	324	328	219	2.06	1.02	190	1199	436	218	4.1	4.1	219	49.68	25.06	190	5.09	1.82
COLD W/ HOT STARTS						MEAN ODOMETER = 25863							PERCENT FAIL = 86													
36	493	733	36	2.10	1.50	27	1236	543	36	512	718	36	2.42	1.47	27	1134	504	36	6.6	9.1	36	59.05	37.53	27	4.71	2.06
HOT STARTS																										
36	376	647	36	1.81	1.55	27	1225	564																		
DIFFERENCE (HOT - COLD)																										
36	-116	192	36	-0.28	0.40	27	-11	231																		
V81																										
COLD STARTS						MEAN ODOMETER = 23341							PERCENT FAIL = 53													
17	573	438	17	2.46	1.75	12	1348	516	17	634	435	17	2.57	1.69	12	1363	522	17	3.9	2.8	17	31.65	20.38	12	2.32	0.79
COLD W/ HOT STARTS						MEAN ODOMETER = 0							PERCENT FAIL = 0													
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
V82																										
COLD STARTS						MEAN ODOMETER = 23525							PERCENT FAIL = 37													
16	335	174	16	1.73	1.60	14	914	369	16	367	199	16	1.82	1.58	14	901	364	16	2.9	1.6	16	27.14	24.51	14	2.30	1.02
COLD W/ HOT STARTS						MEAN ODOMETER = 37573							PERCENT FAIL = 50													
2	403	148	2	2.37	0.13	1	971	0	2	526	316	2	2.79	0.76	1	698	0	2	4.2	2.5	2	41.56	11.38	1	1.51	0.0
HOT STARTS																										
2	281	5	2	2.08	0.46	1	1004	0																		
DIFFERENCE (HOT - COLD)																										
2	-122	154	2	-0.29	0.33	1	133	0																		
VOLK																										
COLD STARTS						MEAN ODOMETER = 23430							PERCENT FAIL = 45													
33	461	354	33	2.11	1.69	26	1114	496	33	499	357	33	2.71	1.66	26	1114	494	33	3.4	2.3	33	29.46	21.73	26	2.59	1.04
COLD W/ HOT STARTS						MEAN ODOMETER = 37573							PERCENT FAIL = 50													
2	403	148	2	2.37	0.13	1	971	0	2	526	316	2	2.79	0.76	1	698	0	2	4.2	2.5	2	41.56	11.38	1	1.51	0.0
HOT STARTS																										
2	281	5	2	2.08	0.46	1	1004	0																		
DIFFERENCE (HOT - COLD)																										
2	-122	154	2	-0.29	0.33	1	133	0																		

25 CB A

HOUSTON, PHASE I

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT					
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOX GM/MI	
	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD
TOT																		
COLD STARTS						MEAN ODOMETER = 24234						PERCENT FAIL = 72						
428	318	301 430	1.65	1.13 371	1393	541 428	345	243 430	1.97	1.12 370	1296	436 428	4.1	3.6 430	44.66	26.53 370	5.10	1.98
COLD W/ HOT STARTS						MEAN ODOMETER = 24560						PERCENT FAIL = 85						
63	455	577 63	1.81	1.30 48	1385	528 63	478	564 63	2.12	1.29 48	1274	492 63	6.0	7.3 63	50.91	31.14 48	5.17	1.93
HOT STARTS																		
63	344	495 63	1.58	1.29 48	1382	545												
DIFFERENCE (HOT - COLD)																		
63	-110	219 63	-0.23	0.38 44	-3	413												

V
253

TABLE C-5

Houston

Phase II

HOUSTON, PHASE 2

	CYCLES 6-7								COMPOSITE								MASS EQUIVALENT								
	HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM		HC GM/MI			CO GM/MI			NOXC GM/MI	
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
A01																									
COLD STARTS								MEAN ODOMETER = 30746								PERCENT FAIL = 72									
	11	278	66	11	1.69	0.70	11	1533	392	11	351	215	11	1.92	0.78	11	1417	350	11	3.5	2.0	11	36.44	14.75	11	4.33	1.34
COLD W/ HOT STARTS								MEAN ODOMETER = 34953								PERCENT FAIL = 100									
	3	273	13	3	1.80	0.79	3	1410	119	3	284	2	3	1.75	0.60	3	1437	87	3	2.9	0.4	3	33.57	14.75	3	4.42	0.24
HOT STARTS																											
	3	271	17	3	1.85	0.31	3	1399	228																		
DIFFERENCE (HOT - COLD)																											
	3	-1	6	3	0.05	0.54	3	-10	145																		
C11																											
COLD STARTS								MEAN ODOMETER = 32866								PERCENT FAIL = 91									
	12	275	83	12	2.17	1.83	12	1992	915	12	354	156	12	2.60	1.61	12	1738	787	12	3.6	1.4	12	48.89	27.08	12	5.47	2.53
COLD W/ HOT STARTS								MEAN ODOMETER = 46318								PERCENT FAIL = 100									
	2	266	41	2	1.99	0.00	2	2851	910	2	348	22	2	2.46	0.26	2	2508	735	2	3.8	0.1	2	50.81	9.59	2	8.16	2.97
HOT STARTS																											
	2	266	91	2	1.88	0.06	2	2894	936																		
DIFFERENCE (HOT - COLD)																											
	2	0	10	2	-0.11	0.06	2	43	28																		
C12																											
COLD STARTS								MEAN ODOMETER = 33837								PERCENT FAIL = 66									
	12	312	149	12	1.79	1.06	12	1498	558	12	337	132	12	2.11	1.05	12	1351	474	12	4.2	1.7	12	49.27	24.85	12	5.26	2.09
COLD W/ HOT STARTS								MEAN ODOMETER = 78742								PERCENT FAIL = 100									
	1	406	0	1	3.17	0.0	1	936	0	1	431	0	1	2.95	0.0	1	1048	0	1	5.5	0.0	1	70.28	0.0	1	3.79	0.0
HOT STARTS																											
	1	337	0	1	1.48	0.0	1	1565	0																		
DIFFERENCE (HOT - COLD)																											
	1	-69	0	1	-1.69	0.0	1	629	0																		
C13																											
COLD STARTS								MEAN ODOMETER = 39486								PERCENT FAIL = 75									
	12	235	52	12	1.35	0.81	12	1753	656	12	277	75	12	1.63	0.74	12	1592	552	12	3.6	0.9	12	39.65	17.90	12	6.11	2.02
COLD W/ HOT STARTS								MEAN ODOMETER =		0						PERCENT FAIL = 0									
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																											
	0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																											
	0	0	0	0	0.0	0.0	0	0	0																		
C14																											
COLD STARTS								MEAN ODOMETER = 32893								PERCENT FAIL = 91									
	12	292	131	12	2.75	2.23	12	1058	515	12	328	130	12	3.14	2.04	12	934	458	12	4.5	1.9	12	80.38	53.08	12	3.89	1.95
COLD W/ HOT STARTS								MEAN ODOMETER = 56433								PERCENT FAIL = 100									
	1	659	0	1	5.93	0.0	1	358	0	1	645	0	1	5.87	0.0	1	362	0	1	8.8	0.0	1	150.54	0.0	1	1.41	0.0
HOT STARTS																											
	1	456	0	1	5.27	0.0	1	495	0																		
DIFFERENCE (HOT - COLD)																											
	1	-203	0	1	-0.66	0.0	1	137	0																		

C1A

HOUSTON, PHASE 2

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
CHRY																					
COLD STARTS							MEAN ODOMETER = 34770						PERCENT FAIL = 81								
	48	279	111	48	2.01	1.62	48	1575	744	48	324	126	48	2.37	1.51	48	1404	642	48	4.0	1.5
	48	54.70	36.07	48	5.18	2.22															
COLD W/ HOT STARTS							MEAN ODOMETER = 56352						PERCENT FAIL = 100								
	4	399	186	4	3.27	1.86	4	1749	1397	4	443	140	4	3.44	1.64	4	1606	1158	4	5.5	2.4
	4	60.61	47.84	4	5.38	3.77															
HOT STARTS																					
	4	331	94	4	2.63	1.77	4	1962	1281												
DIFFERENCE (HOT - COLD)																					
	4	-67	96	4	-0.64	0.75	4	213	281												
F31																					
COLD STARTS							MEAN ODOMETER = 32161						PERCENT FAIL = 46								
	13	274	115	13	0.88	0.54	13	2117	663	13	295	98	13	1.19	0.47	13	1959	623	13	3.1	1.0
	13	23.49	8.15	13	6.47	2.45															
COLD W/ HOT STARTS							MEAN ODOMETER = 41107						PERCENT FAIL = 100								
	1	275	0	1	1.21	0.0	1	1754	0	1	309	0	1	1.58	0.0	1	1578	0	1	3.2	0.0
	1	30.91	0.0	1	5.36	0.0															
HOT STARTS																					
	1	230	0	1	0.93	0.0	1	1709	0												
DIFFERENCE (HOT - COLD)																					
	1	-45	0	1	-0.28	0.0	1	-45	0												
F32																					
COLD STARTS							MEAN ODOMETER = 22474						PERCENT FAIL = 90								
	10	292	97	10	2.61	1.53	10	1265	719	10	331	104	10	2.83	1.57	10	1186	654	10	3.2	1.0
	10	51.22	28.63	10	3.44	2.05															
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
	0	0.0	0.0	0	0.0	0.0															
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
F33																					
COLD STARTS							MEAN ODOMETER = 33069						PERCENT FAIL = 100								
	11	455	257	11	1.42	0.64	11	1978	471	11	483	255	11	1.63	0.58	11	1831	455	11	6.0	3.6
	11	37.38	14.74	11	6.90	1.71															
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
	0	0.0	0.0	0	0.0	0.0															
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
F34																					
COLD STARTS							MEAN ODOMETER = 24497						PERCENT FAIL = 72								
	11	305	119	11	1.21	0.58	11	1639	593	11	350	140	11	1.67	0.96	11	1438	531	11	4.3	1.5
	11	38.87	22.39	11	5.56	2.45															
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0
	0	0.0	0.0	0	0.0	0.0															
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												

HOUSTON, PHASE 2

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT					
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD
F35						MEAN ODOMETER = 37583						PERCENT FAIL = 58						
COLD STARTS	12	224 51	12	1.39 0.83	12	1470 541	12	284 125	12	1.61 0.85	12	1326 503	12	3.8 1.7	12	39.71 21.51	12	5.25 1.98
COLD W/ HOT STARTS						MEAN ODOMETER = 35109						PERCENT FAIL = 100						
	1	283 0	1	1.88 0.0	1	1348 0	1	303 0	1	2.01 0.0	1	1141 0	1	3.5 0.0	1	43.76 0.0	1	4.17 0.0
HOT STARTS																		
	1	277 0	1	1.45 0.0	1	1099 0												
DIFFERENCE (HOT - COLD)																		
	1	-6 0	1	-0.43 0.0	1	-249 0												
F36						MEAN ODOMETER = 31083						PERCENT FAIL = 81						
COLD STARTS	11	251 105	11	2.34 1.50	11	1007 439	11	275 97	11	2.78 1.52	11	887 388	11	3.9 1.3	11	73.77 40.33	11	3.81 1.62
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0						
	0	0 0	0	0.0 0.0	0	0 0	0	0 0	0	0.0 0.0	0	0 0	0	0.0 0.0	0	0.0 0.0	0	0.0 0.0
HOT STARTS																		
	0	0 0	0	0.0 0.0	0	0 0												
DIFFERENCE (HOT - COLD)																		
	0	0 0	0	0.0 0.0	0	0 0												
FORD						MEAN ODOMETER = 30426						PERCENT FAIL = 73						
COLD STARTS	68	298 152	68	1.60 1.14	68	1598 681	68	334 157	68	1.91 1.19	68	1455 635	68	4.0 2.1	68	43.33 28.24	68	5.30 2.36
COLD W/ HOT STARTS						MEAN ODOMETER = 38108						PERCENT FAIL = 100						
	2	279 5	2	1.54 0.47	2	1551 287	2	306 4	2	1.79 0.30	2	1359 309	2	3.4 0.2	2	37.33 9.09	2	4.76 0.84
HOT STARTS																		
	2	253 33	2	1.19 0.37	2	1405 431												
DIFFERENCE (HOT - COLD)																		
	2	-25 27	2	-0.35 0.11	2	-147 144												
G51						MEAN ODOMETER = 36577						PERCENT FAIL = 61						
COLD STARTS	13	266 115	13	1.32 0.92	13	1344 566	13	303 106	13	1.82 0.75	13	1205 449	13	3.5 1.2	13	39.54 16.34	13	4.20 1.57
COLD W/ HOT STARTS						MEAN ODOMETER = 57545						PERCENT FAIL = 100						
	1	201 0	1	1.98 0.0	1	974 0	1	343 0	1	2.61 0.0	1	888 0	1	4.0 0.0	1	56.82 0.0	1	2.98 0.0
HOT STARTS																		
	1	180 0	1	0.93 0.0	1	1282 0												
DIFFERENCE (HOT - COLD)																		
	1	-21 0	1	-1.05 0.0	1	308 0												
G52						MEAN ODOMETER = 34667						PERCENT FAIL = 25						
COLD STARTS	12	174 72	12	0.64 0.34	12	1443 402	12	209 90	12	1.27 0.49	12	1276 347	12	2.4 0.9	12	27.93 10.68	12	4.44 1.26
COLD W/ HOT STARTS						MEAN ODOMETER = 34178						PERCENT FAIL = 50						
	2	150 2	2	0.94 0.45	2	1484 399	2	183 3	2	1.59 0.45	2	1338 277	2	2.1 0.0	2	34.57 9.81	2	4.75 1.38
HOT STARTS																		
	2	152 12	2	0.75 0.23	2	1574 841												
DIFFERENCE (HOT - COLD)																		
	2	1 14	2	-0.18 0.22	2	89 441												

HOUSTON, PHASE 2

CYCLES 6-7									COMPOSITE						MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G53																										
COLD STARTS						MEAN ODOMETER = 32921								PERCENT FAIL = 100												
12	415	188	12	1.50	0.76	12	1706	502	12	437	177	12	1.89	0.71	12	1548	455	12	5.2	2.2	12	41.93	16.53	12	9.34	1.53
COLD W/ HOT STARTS						MEAN ODOMETER = 0								PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
G54																										
COLD STARTS						MEAN ODOMETER = 37079								PERCENT FAIL = 100												
11	452	213	11	3.48	2.34	11	790	516	11	500	228	11	3.82	2.25	11	728	478	11	6.2	2.7	11	89.13	50.87	11	7.87	1.90
COLD W/ HOT STARTS						MEAN ODOMETER = 0								PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
G55																										
COLD STARTS						MEAN ODOMETER = 29851								PERCENT FAIL = 86												
15	289	61	15	1.46	0.62	15	1681	450	15	311	58	15	2.01	0.77	15	1505	423	15	3.9	0.8	15	47.56	18.14	15	5.96	1.76
COLD W/ HOT STARTS						MEAN ODOMETER = 43654								PERCENT FAIL = 100												
1	207	0	1	0.90	0.0	1	1908	0	1	254	0	1	1.86	0.0	1	1589	0	1	3.2	0.0	1	44.40	0.0	1	5.83	0.0
HOT STARTS																										
1	247	0	1	0.74	0.0	1	1893	0																		
DIFFERENCE (HOT - COLD)																										
1	40	0	1	-0.16	0.0	1	-15	0																		
G56																										
COLD STARTS						MEAN ODOMETER = 33140								PERCENT FAIL = 81												
11	398	392	11	2.31	1.69	11	1033	672	11	398	344	11	2.59	1.64	11	972	663	11	5.2	4.4	11	63.55	41.80	11	3.95	2.78
COLD W/ HOT STARTS						MEAN ODOMETER = 0								PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
CHEV																										
COLD STARTS						MEAN ODOMETER = 33866								PERCENT FAIL = 75												
74	327	213	74	1.74	1.49	74	1359	599	74	354	201	74	2.19	1.41	74	1228	537	74	4.3	2.5	74	50.61	33.60	74	4.55	2.04
COLD W/ HOT STARTS						MEAN ODOMETER = 42384								PERCENT FAIL = 75												
4	177	31	4	1.19	0.59	4	1462	446	4	241	75	4	1.91	0.55	4	1288	332	4	2.9	0.9	4	42.59	11.98	4	4.57	1.42
HOT STARTS																										
4	182	45	4	0.79	0.14	4	1580	546																		
DIFFERENCE (HOT - COLD)																										
4	5	26	4	-0.39	0.45	4	118	289																		

261 A

HOUSTON, PHASE 2

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT			NO PPM			HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G61																					
COLD STARTS							MEAN ODOMETER = 30181						PERCENT FAIL = 70								
	10	238	58	10	1.22	0.59	10	1994	685	10	259	55	10	1.62	0.45	10	1753	607	10	3.2	0.8	10	38.27	11.34	10	6.72	1.78
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G62																					
COLD STARTS							MEAN ODOMETER = 31279						PERCENT FAIL = 66								
	12	231	44	12	1.42	0.52	12	1518	484	12	250	47	12	1.76	0.56	12	1352	440	12	3.4	0.7	12	44.57	14.77	12	5.49	1.74
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G63																					
COLD STARTS							MEAN ODOMETER = 37006						PERCENT FAIL = 91								
	12	319	103	12	2.25	1.44	12	1355	565	12	330	97	12	2.57	1.34	12	1221	509	12	4.5	1.3	12	65.70	34.29	12	5.02	2.11
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
PONT																					
COLD STARTS							MEAN ODOMETER = 32977						PERCENT FAIL = 76								
	34	264	82	34	1.65	1.04	34	1600	619	34	281	78	34	2.01	0.97	34	1424	549	34	3.7	1.1	34	50.17	25.33	34	5.69	1.96
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G66																					
COLD STARTS							MEAN ODOMETER = 29307						PERCENT FAIL = 100								
	14	282	63	14	2.17	0.75	14	1091	430	14	313	56	14	2.57	0.61	14	979	369	14	4.0	0.8	14	60.90	14.55	14	3.77	1.15
COLD W/ HOT STARTS							MEAN ODOMETER = 43191						PERCENT FAIL = 100								
	1	260	0	1	2.65	0.0	1	1108	0	1	305	0	1	3.13	0.0	1	980	0	1	3.9	0.0	1	74.72	0.0	1	3.59	0.0
HOT STARTS																					
	1	257	0	1	2.74	0.0	1	974	0												
DIFFERENCE (HOT - COLD)																					
	1	-3	0	1	0.09	0.0	1	-134	0												

HOUSTON, PHASE 2

CYCLES 6-7								COMPOSITE								MASS EQUIVALENT							
HC PPM			CO PERCENT			NO PPM		HC PPM			CO PERCENT			NO PPM		HC GM/MI			CO GM/MI			NOXC GM/MI	
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G67																							
COLD STARTS						MEAN ODOMETER = 34047							PERCENT FAIL = 50										
10	181	75	10	1.43	1.25	10	1287	449	10	198	60	10	1.87	1.09	10	1170	413	10	2.7	0.8	10	47.95	28.03	10	4.93	1.82
COLD W/ HOT STARTS						MEAN ODOMETER = 33915							PERCENT FAIL = 100										
2	188	114	2	1.80	2.00	2	1165	572	2	216	67	2	2.51	1.14	2	994	376	2	2.9	0.9	2	64.39	29.05	2	4.12	1.20
HOT STARTS																							
2	163	60	2	0.45	0.13	2	1488	132															
DIFFERENCE (HOT - COLD)																							
2	-24	54	2	-1.35	1.87	2	328	705															
OLDS																							
COLD STARTS						MEAN ODOMETER = 31107							PERCENT FAIL = 75										
24	240	84	24	1.86	1.03	24	1173	440	24	265	81	24	2.28	0.90	24	1058	391	24	3.4	1.0	24	55.50	21.67	24	4.25	1.54
COLD W/ HOT STARTS						MEAN ODOMETER = 37007							PERCENT FAIL = 100										
3	212	91	3	2.09	1.50	3	1142	406	3	246	69	3	2.72	0.88	3	989	266	3	3.3	0.8	3	67.83	21.39	3	3.95	0.90
HOT STARTS																							
3	194	68	3	1.22	1.32	3	1316	311															
DIFFERENCE (HOT - COLD)																							
3	-17	40	3	-0.87	1.56	3	174	565															
G71																							
COLD STARTS						MEAN ODOMETER = 39128							PERCENT FAIL = 100										
12	247	56	12	2.37	0.72	12	1126	281	12	275	44	12	2.95	0.72	12	992	268	12	3.6	0.7	12	72.72	17.41	12	3.87	1.15
COLD W/ HOT STARTS						MEAN ODOMETER = 0							PERCENT FAIL = 0										
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																							
0	0	0	0	0.0	0.0	0	0	0															
DIFFERENCE (HOT - COLD)																							
0	0	0	0	0.0	0.0	0	0	0															
G72																							
COLD STARTS						MEAN ODOMETER = 25778							PERCENT FAIL = 81										
11	225	56	11	1.49	0.48	11	1484	342	11	257	58	11	2.07	0.55	11	1318	324	11	3.5	0.8	11	52.99	14.21	11	5.36	1.25
COLD W/ HOT STARTS						MEAN ODOMETER = 0							PERCENT FAIL = 0										
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																							
0	0	0	0	0.0	0.0	0	0	0															
DIFFERENCE (HOT - COLD)																							
0	0	0	0	0.0	0.0	0	0	0															
BUIC																							
COLD STARTS						MEAN ODOMETER = 32743							PERCENT FAIL = 91										
23	237	56	23	1.95	0.75	23	1297	355	23	267	51	23	2.53	0.78	23	1148	334	23	3.6	0.7	23	63.28	18.57	23	4.58	1.40
COLD W/ HOT STARTS						MEAN ODOMETER = 0							PERCENT FAIL = 0										
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																							
0	0	0	0	0.0	0.0	0	0	0															
DIFFERENCE (HOT - COLD)																							
0	0	0	0	0.0	0.0	0	0	0															

HOUSTON, PHASE 2

CYCLES 6-7									COMPOSITE								MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM		HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G76																										
COLD STARTS						MEAN ODOMETER = 27827									PERCENT FAIL = 25											
12	140	31	12	1.00	0.54	12	1649	357	12	205	161	12	1.55	0.84	12	1460	335	12	3.0	2.3	12	41.93	22.73	12	6.51	1.42
COLD W/ HOT STARTS						MEAN ODOMETER = 45290									PERCENT FAIL = 66											
3	163	22	3	1.58	0.77	3	1461	400	3	353	312	3	2.48	1.34	3	1167	232	3	5.1	4.5	3	66.96	36.05	3	5.52	1.20
HOT STARTS																										
3	169	18	3	1.59	0.70	3	1460	388																		
DIFFERENCE (HOT - COLD)																										
3	6	4	3	0.01	0.07	3	0	62																		
G.M.																										
COLD STARTS						MEAN ODOMETER = 32700									PERCENT FAIL = 74											
167	276	160	167	1.71	1.22	167	1393	555	167	304	156	167	2.17	1.16	167	1249	496	167	3.9	2.0	167	52.35	28.23	167	4.88	1.94
COLD W/ HOT STARTS						MEAN ODOMETER = 41644									PERCENT FAIL = 80											
10	183	51	10	1.57	0.95	10	1366	403	10	276	165	10	2.32	0.90	10	1162	285	10	3.6	2.4	10	57.47	24.54	10	4.67	1.26
HOT STARTS																										
10	182	43	10	1.16	0.79	10	1465	409																		
DIFFERENCE (HOT - COLD)																										
10	-1	27	10	-0.41	0.86	10	99	324																		
V81																										
COLD STARTS						MEAN ODOMETER = 32494									PERCENT FAIL = 91											
12	691	734	12	2.45	1.49	12	1249	341	12	693	685	12	2.56	1.43	12	1297	351	12	4.5	4.4	12	31.33	17.51	12	2.67	0.68
COLD W/ HOT STARTS						MEAN ODOMETER = 0									PERCENT FAIL = 0											
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
V82																										
COLD STARTS						MEAN ODOMETER = 30998									PERCENT FAIL = 33											
9	382	286	9	1.93	1.69	9	1157	580	9	427	272	9	1.97	1.57	9	1139	553	9	3.4	2.2	9	29.35	23.41	9	2.74	1.31
COLD W/ HOT STARTS						MEAN ODOMETER = 0									PERCENT FAIL = 0											
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
VOLK																										
COLD STARTS						MEAN ODOMETER = 31853									PERCENT FAIL = 66											
21	559	595	21	2.23	1.56	21	1210	448	21	579	553	21	2.31	1.48	21	1229	443	21	4.0	3.6	21	30.48	19.72	21	2.70	0.97
COLD W/ HOT STARTS						MEAN ODOMETER = 0									PERCENT FAIL = 0											
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		

HOUSTON, PHASE 2

CYCLES 6-7									COMPOSITE						MASS EQUIVALENT					
HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
TOT																				
COLD STARTS							MEAN ODOMETER = 32405					PERCENT FAIL = 74								
315	300	219	315	1.77	1.29	315	1458	613	315	333	214	315	2.14	1.24	315	1322	550	315	3.9	2.1	315	48.75	29.40	315	4.85	2.10
COLD W/ HOT STARTS							MEAN ODOMETER = 43439					PERCENT FAIL = 89								
19	253	121	19	1.96	1.26	19	1473	661	19	315	147	19	2.41	1.12	19	1319	552	19	3.9	2.2	19	56.45	31.14	19	4.79	1.82
HOT STARTS																				
19	235	80	19	1.58	1.11	19	1553	649												
DIFFERENCE (HOT - COLD)																				
19	-17	52	19	-0.38	0.74	19	80	283												

TABLE C-6

Houston

Phase III

HOUSTON, PHASE 3

CYCLES 6-7						COMPOSITE						PASS EQUIVALENT					
HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI	
N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD	N	MEAN STD
A01																	
COLD STARTS				MEAN ODOMETER = 37103					PERCENT FAIL = 100								
10	296 66	10	1.57 0.81	10 1331 352		10 330 62		10 1.74 0.69		10 1239 278		10 3.3 0.6		10 33.69 15.51		10 4.49 1.72	
COLD W/ HOT STARTS				MEAN ODOMETER = 43689					PERCENT FAIL = 100								
1	345 0	1	2.15 0.0	1 1294 0		1 379 0		1 2.30 0.0		1 1218 0		1 3.5 0.0		1 39.97 0.0		1 4.49 0.0	
HOT STARTS																	
1	335 0	1	2.03 0.0	1 1397 0													
DIFFERENCE (HOT - COLD)																	
1	-10 0	1	-0.12 0.0	1 103 0													
C11																	
COLD STARTS				MEAN ODOMETER = 36902					PERCENT FAIL = 80								
10	256 92	10	1.84 1.14	10 1675 687		10 383 336		10 2.36 1.26		10 1504 634		10 3.8 3.0		10 44.62 21.99		10 5.60 2.65	
COLD W/ HOT STARTS				MEAN ODOMETER = 20722					PERCENT FAIL = 0								
1	151 0	1	0.56 0.0	1 1883 0		1 182 0		1 1.02 0.0		1 1681 0		1 1.9 0.0		1 19.69 0.0		1 5.98 0.0	
HOT STARTS																	
1	137 0	1	0.55 0.0	1 1930 0													
DIFFERENCE (HOT - COLD)																	
1	-14 0	1	-0.01 0.0	1 47 0													
C12																	
COLD STARTS				MEAN ODOMETER = 41613					PERCENT FAIL = 91								
12	277 64	12	1.93 1.06	12 1457 457		12 302 58		12 2.22 1.00		12 1250 445		12 3.8 0.8		12 51.58 23.10		12 5.40 2.06	
COLD W/ HOT STARTS				MEAN ODOMETER = 40829					PERCENT FAIL = 100								
2	239 45	2	1.99 1.41	2 1559 37		2 275 16		2 2.44 1.03		2 1356 78		2 3.3 0.0		2 54.80 19.90		2 5.94 0.21	
HOT STARTS																	
2	230 40	2	1.87 1.41	2 1510 100													
DIFFERENCE (HOT - COLD)																	
2	-9 5	2	-0.11 0.01	2 -49 62													
C13																	
COLD STARTS				MEAN ODOMETER = 43949					PERCENT FAIL = 75								
8	306 86	8	1.95 1.32	8 1167 257		8 334 105		8 2.21 1.35		8 1068 229		8 4.3 1.4		8 54.16 34.82		8 5.04 0.93	
COLD W/ HOT STARTS				MEAN ODOMETER = 70633					PERCENT FAIL = 100								
1	320 0	1	2.51 0.0	1 957 0		1 333 0		1 2.63 0.0		1 926 0		1 4.5 0.0		1 67.27 0.0		1 4.72 0.0	
HOT STARTS																	
1	319 0	1	2.66 0.0	1 930 0													
DIFFERENCE (HOT - COLD)																	
1	-1 0	1	0.15 0.0	1 -27 0													
C14																	
COLD STARTS				MEAN ODOMETER = 42575					PERCENT FAIL = 81								
11	237 43	11	1.52 0.66	11 1019 338		11 264 41		11 1.98 0.71		11 930 331		11 3.6 0.6		11 47.54 17.55		11 4.72 1.91	
COLD W/ HOT STARTS				MEAN ODOMETER = 67945					PERCENT FAIL = 100								
1	291 0	1	2.09 0.0	1 822 0		1 312 0		1 2.62 0.0		1 682 0		1 4.0 0.0		1 62.40 0.0		1 3.74 0.0	
HOT STARTS																	
1	294 0	1	1.94 0.0	1 779 0													
DIFFERENCE (HOT - COLD)																	
1	3 0	1	-0.15 0.0	1 -43 0													

>022

HOUSTON, PHASE 3

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI			CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
CHRY																					
COLD STARTS						MEAN ODOMETER = 42348						PERCENT FAIL = 82									
	41	267	73	41	1.80	1.02	41	1307	518	41	318	175	41	2.16	1.05	41	1190	478	41	3.8	1.7	41	49.30	23.61	41	5.20	1.98
COLD W/ HOT STARTS						MEAN ODOMETER = 48191						PERCENT FAIL = 80									
	5	248	68	5	1.83	1.02	5	1356	448	5	275	58	5	2.23	0.86	5	1200	396	5	3.4	1.0	5	51.79	21.20	5	5.17	1.21
HOT STARTS																					
	5	242	73	5	1.78	1.04	5	1331	473												
DIFFERENCE (HOT - COLD)																					
	5	-6	7	5	-0.05	0.12	5	-24	51												
F31																					
COLD STARTS						MEAN ODOMETER = 36460						PERCENT FAIL = 60									
	10	308	118	10	1.06	0.59	10	1681	502	10	323	119	10	1.25	0.51	10	1606	563	10	3.4	1.2	10	24.46	9.59	10	6.18	2.38
COLD W/ HOT STARTS						MEAN ODOMETER = 30341						PERCENT FAIL = 33									
	3	221	43	3	0.55	0.17	3	1950	372	3	238	33	3	0.86	0.25	3	1828	358	3	2.4	0.3	3	16.53	4.82	3	6.95	1.54
HOT STARTS																					
	3	219	57	3	0.43	0.12	3	1986	276												
DIFFERENCE (HOT - COLD)																					
	3	-1	17	3	-0.12	0.15	3	35	145												
F32																					
COLD STARTS						MEAN ODOMETER = 32598						PERCENT FAIL = 75									
	8	315	130	8	2.53	1.36	8	1032	836	8	353	155	8	2.71	1.36	8	962	766	8	3.4	1.4	8	48.38	23.61	8	3.32	2.65
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0									
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
F33																					
COLD STARTS						MEAN ODOMETER = 43673						PERCENT FAIL = 75									
	8	323	164	8	1.63	0.89	8	1493	646	8	329	161	8	1.66	0.72	8	1452	581	8	4.0	2.1	8	38.12	16.71	8	6.29	2.24
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0									
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
F34																					
COLD STARTS						MEAN ODOMETER = 31298						PERCENT FAIL = 80									
	10	332	149	10	1.67	0.96	10	1287	545	10	347	148	10	1.96	0.60	10	1176	495	10	4.2	1.5	10	45.09	13.71	10	5.45	2.69
COLD W/ HOT STARTS						MEAN ODOMETER = 38570						PERCENT FAIL = 100									
	1	349	0	1	1.85	0.0	1	1412	0	1	355	0	1	2.16	0.0	1	1240	0	1	4.8	0.0	1	55.24	0.0	1	6.20	0.0
HOT STARTS																					
	1	322	0	1	1.70	0.0	1	1337	0												
DIFFERENCE (HOT - COLD)																					
	1	-27	0	1	-0.15	0.0	1	-75	0												

271

HOUSTON, PHASE 3

	CYCLES			COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT	NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
F35																		
COLD STARTS				MEAN ODOMETER = 47571						PERCENT FAIL = 70								
	10	252	59	10	1.52	0.57	10	1177	395	10	267	56	10	1.67	0.65	10	1096	388
COLD W/ HOT STARTS				MEAN ODOMETER = 62152						PERCENT FAIL = 100								
	1	211	0	1	1.85	0.0	1	980	0	1	228	0	1	2.08	0.0	1	892	0
HOT STARTS																		
	1	204	0	1	1.45	0.0	1	1111	0									
DIFFERENCE (HOT - COLD)																		
	1	-7	0	1	-0.40	0.0	1	131	0									

	HC GM/MI			CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
F35									
COLD STARTS									
	10	3.5	0.7	10	40.42	15.05	10	5.16	1.83
COLD W/ HOT STARTS									
	1	3.1	0.0	1	53.20	0.0	1	4.37	0.0

F36																		
COLD STARTS				MEAN ODOMETER = 40060						PERCENT FAIL = 100								
	7	332	178	7	2.77	1.17	7	674	307	7	380	163	7	3.12	1.40	7	602	284
COLD W/ HOT STARTS				MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0
HOT STARTS																		
	0	0	0	0	0.0	0.0	0	0	0									
DIFFERENCE (HOT - COLD)																		
	0	0	0	0	0.0	0.0	0	0	0									

	HC GM/MI			CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
F36									
COLD STARTS									
	7	5.4	2.4	7	83.47	37.09	7	3.16	1.54
COLD W/ HOT STARTS									
	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0

FORD																		
COLD STARTS				MEAN ODOMETER = 38563						PERCENT FAIL = 75								
	53	308	131	53	1.80	1.01	53	1252	631	53	330	133	53	1.99	1.06	53	1176	597
COLD W/ HOT STARTS				MEAN ODOMETER = 38343						PERCENT FAIL = 60								
	5	244	66	5	1.07	0.72	5	1648	513	5	259	58	5	1.36	0.71	5	1523	503
HOT STARTS																		
	5	237	62	5	0.89	0.64	5	1681	467									
DIFFERENCE (HOT - COLD)																		
	5	-7	16	5	-0.18	0.16	5	32	126									

	HC GM/MI			CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
FORD									
COLD STARTS									
	53	3.9	1.6	53	44.90	25.53	53	5.04	2.49
COLD W/ HOT STARTS									
	5	3.1	1.1	5	31.61	20.93	5	6.28	1.56

G51																		
COLD STARTS				MEAN ODOMETER = 42914						PERCENT FAIL = 60								
	10	252	82	10	1.26	1.19	10	1299	591	10	283	86	10	1.77	1.14	10	1153	515
COLD W/ HOT STARTS				MEAN ODOMETER = 38937						PERCENT FAIL = 0								
	1	189	0	1	0.26	0.0	1	2110	0	1	231	0	1	1.34	0.0	1	1785	0
HOT STARTS																		
	1	195	0	1	0.40	0.0	1	2241	0									
DIFFERENCE (HOT - COLD)																		
	1	6	0	1	0.14	0.0	1	131	0									

	HC GM/MI			CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G51									
COLD STARTS									
	10	3.3	1.0	10	38.46	24.79	10	4.77	1.94
COLD W/ HOT STARTS									
	1	2.7	0.0	1	29.11	0.0	1	6.34	0.0

G52																		
COLD STARTS				MEAN ODOMETER = 40062						PERCENT FAIL = 50								
	10	196	56	10	1.13	0.71	10	1145	561	10	227	69	10	1.56	0.81	10	1033	490
COLD W/ HOT STARTS				MEAN ODOMETER = 49017						PERCENT FAIL = 50								
	2	183	45	2	1.14	0.77	2	956	101	2	199	55	2	1.62	0.94	2	845	60
HOT STARTS																		
	2	196	52	2	1.23	0.73	2	1062	96									
DIFFERENCE (HOT - COLD)																		
	2	12	6	2	0.09	0.04	2	105	4									

	HC GM/MI			CO GM/MI			NOXC GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G52									
COLD STARTS									
	10	2.7	0.8	10	34.20	17.56	10	4.46	2.13
COLD W/ HOT STARTS									
	2	2.3	0.6	2	35.31	20.44	2	3.39	0.09

HOUSTON, PHASE 3

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN	STD	MEAN	STD	MEAN	STD	MEAN	STD	MEAN	STD	MEAN	STD	MEAN	STD	MEAN	STD	MEAN	STD	MEAN	STD
G53																					
COLD STARTS						MEAN ODOMETER = 38670						PERCENT FAIL = 100									
	9	480	315	9	1.48	0.30	9	1393	297	9	498	294	9	1.85	0.43	9	1297	274	9	6.0	3.8	9	40.89	9.43	9	5.40	1.24
COLD W/ HOT STARTS						MEAN ODOMETER = 40154						PERCENT FAIL = 100									
	1	771	0	1	1.47	0.0	1	941	0	1	790	0	1	1.90	0.0	1	860	0	1	9.1	0.0	1	41.28	0.0	1	3.14	0.0
HOT STARTS																					
	1	782	0	1	1.39	0.0	1	1056	0												
DIFFERENCE (HOT - COLD)																					
	1	11	0	1	-0.08	0.0	1	115	0												
G54																					
COLD STARTS						MEAN ODOMETER = 40251						PERCENT FAIL = 100									
	9	380	198	9	2.45	1.22	9	881	259	9	402	177	9	3.02	1.12	9	759	177	9	5.0	2.1	9	70.88	27.66	9	3.31	0.68
COLD W/ HOT STARTS						MEAN ODOMETER = 42182						PERCENT FAIL = 100									
	2	315	107	2	1.96	1.34	2	923	453	2	342	102	2	2.38	0.93	2	833	315	2	4.2	1.5	2	54.89	24.78	2	3.60	0.96
HOT STARTS																					
	2	316	102	2	1.65	0.89	2	987	284												
DIFFERENCE (HOT - COLD)																					
	2	1	4	2	-0.32	0.45	2	64	168												
G55																					
COLD STARTS						MEAN ODOMETER = 39325						PERCENT FAIL = 90									
	11	307	150	11	1.78	0.62	11	1455	494	11	323	135	11	2.27	0.74	11	1318	477	11	4.1	1.7	11	53.71	17.80	11	5.65	1.95
COLD W/ HOT STARTS						MEAN ODOMETER = 0						PERCENT FAIL = 0									
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G56																					
COLD STARTS						MEAN ODOMETER = 34661						PERCENT FAIL = 88									
	9	746	977	9	2.33	1.35	9	689	271	9	688	831	9	2.69	1.26	9	635	249	9	8.8	10.5	9	64.91	20.75	9	2.87	1.09
COLD W/ HOT STARTS						MEAN ODOMETER = 66832						PERCENT FAIL = 100									
	1	325	0	1	2.74	0.0	1	463	0	1	350	0	1	3.07	0.0	1	425	0	1	4.4	0.0	1	73.12	0.0	1	1.98	0.0
HOT STARTS																					
	1	309	0	1	2.88	0.0	1	426	0												
DIFFERENCE (HOT - COLD)																					
	1	-16	0	1	0.14	0.0	1	-37	0												
CHEV																					
COLD STARTS						MEAN ODOMETER = 39372						PERCENT FAIL = 81									
	58	385	437	58	1.72	1.05	58	1157	506	58	396	376	58	2.18	1.05	58	1045	457	58	4.9	4.8	58	50.13	25.15	58	4.45	1.87
COLD W/ HOT STARTS						MEAN ODOMETER = 46903						PERCENT FAIL = 71									
	7	326	212	7	1.53	1.01	7	1039	539	7	350	210	7	2.05	0.81	7	918	433	7	4.2	2.5	7	46.27	20.25	7	3.64	1.38
HOT STARTS																					
	7	330	213	7	1.49	0.88	7	1117	558												
DIFFERENCE (HOT - COLD)																					
	7	4	10	7	-0.04	0.27	7	78	89												

HOUSTON, PHASE 3

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT		NO PPM		HC PPM		CO PERCENT		NO PPM		HC GM/MI		CO GM/MI		NOXC GM/MI				
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G61																					
COLD STARTS							MEAN ODOMETER = 32183						PERCENT FAIL = 62								
	8	238	43	8	1.57	0.79	8	1371	356	8	260	38	8	1.79	0.75	8	1267	306	8	3.2	0.5	8	41.89	17.68	8	5.77	1.62
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G62																					
COLD STARTS							MEAN ODOMETER = 36946						PERCENT FAIL = 72								
	11	206	38	11	1.47	0.51	11	1218	471	11	221	38	11	1.71	0.53	11	1103	444	11	3.0	0.5	11	42.86	13.24	11	5.09	2.17
COLD W/ HOT STARTS							MEAN ODOMETER = 39267						PERCENT FAIL = 100								
	1	248	0	1	1.72	0.0	1	1259	0	1	276	0	1	2.21	0.0	1	1082	0	1	3.5	0.0	1	52.64	0.0	1	4.43	0.0
HOT STARTS																					
	1	234	0	1	1.35	0.0	1	1257	0												
DIFFERENCE (HOT - COLD)																					
	1	-14	0	1	-0.37	0.0	1	-2	0												
G63																					
COLD STARTS							MEAN ODOMETER = 48047						PERCENT FAIL = 100								
	9	359	144	9	3.16	1.83	9	1103	623	9	364	135	9	3.36	1.65	9	1011	545	9	5.0	1.8	9	86.21	41.96	9	4.88	2.65
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
PONT																					
COLD STARTS							MEAN ODOMETER = 39153						PERCENT FAIL = 78								
	28	264	108	28	2.04	1.37	28	1225	401	28	278	101	28	2.26	1.28	28	1120	442	28	3.7	1.4	28	56.52	33.18	28	5.22	2.15
COLD W/ HOT STARTS							MEAN ODOMETER = 39267						PERCENT FAIL = 100								
	1	248	0	1	1.72	0.0	1	1259	0	1	276	0	1	2.21	0.0	1	1082	0	1	3.5	0.0	1	52.64	0.0	1	4.43	0.0
HOT STARTS																					
	1	234	0	1	1.35	0.0	1	1257	0												
DIFFERENCE (HOT - COLD)																					
	1	-14	0	1	-0.37	0.0	1	-2	0												
G66																					
COLD STARTS							MEAN ODOMETER = 36712						PERCENT FAIL = 100								
	11	278	70	11	2.07	0.80	11	921	269	11	304	47	11	2.41	0.77	11	860	286	11	3.8	0.5	11	56.98	17.74	11	3.78	1.19
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												

HOUSTON, PHASE 3

CYCLES 4-7									COMPOSITE								MASS EQUIVALENT							
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G67																										
COLD STARTS						MEAN ODOMETER = 39577								PERCENT FAIL = 50												
6	269	167	6	2.43	2.32	6	868	559	6	276	152	6	2.57	2.14	6	821	527	6	3.8	2.1	6	65.86	54.67	6	3.83	2.45
COLD W/ HOT STARTS						MEAN ODOMETER = 0								PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
DLOS																										
COLD STARTS						MEAN ODOMETER = 37723								PERCENT FAIL = 82												
17	275	108	17	2.20	1.65	17	902	372	17	294	94	17	2.47	1.34	17	846	372	17	3.8	1.2	17	60.11	33.91	17	3.80	1.66
COLD W/ HOT STARTS						MEAN ODOMETER = 0								PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
G71																										
COLD STARTS						MEAN ODOMETER = 45926								PERCENT FAIL = 100												
11	227	42	11	2.76	0.66	11	853	181	11	248	35	11	3.09	0.59	11	794	182	11	3.3	0.5	11	75.88	13.72	11	3.79	0.93
COLD W/ HOT STARTS						MEAN ODOMETER = 38661								PERCENT FAIL = 100												
1	199	0	1	2.93	0.0	1	741	0	1	226	0	1	3.43	0.0	1	702	0	1	3.1	0.0	1	87.73	0.0	1	3.49	0.0
HOT STARTS																										
1	206	0	1	2.78	0.0	1	977	0																		
DIFFERENCE (HOT - COLD)																										
1	7	0	1	-0.15	0.0	1	236	0																		
G72																										
COLD STARTS						MEAN ODOMETER = 25690								PERCENT FAIL = 100												
7	221	47	8	1.62	0.61	8	1172	443	7	242	39	8	2.09	0.56	8	1084	367	7	3.3	0.5	8	53.42	14.35	8	5.26	1.85
COLD W/ HOT STARTS						MEAN ODOMETER = 0								PERCENT FAIL = 0												
0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																										
0	0	0	0	0.0	0.0	0	0	0																		
DIFFERENCE (HOT - COLD)																										
0	0	0	0	0.0	0.0	0	0	0																		
BUIC																										
COLD STARTS						MEAN ODOMETER = 37404								PERCENT FAIL = 100												
18	225	43	19	2.28	0.85	19	987	347	18	245	36	19	2.67	0.76	19	916	304	18	3.3	0.5	19	66.42	17.73	19	4.41	1.54
COLD W/ HOT STARTS						MEAN ODOMETER = 38661								PERCENT FAIL = 100												
1	199	0	1	2.93	0.0	1	741	0	1	226	0	1	3.43	0.0	1	702	0	1	3.1	0.0	1	87.73	0.0	1	3.49	0.0
HOT STARTS																										
1	206	0	1	2.78	0.0	1	977	0																		
DIFFERENCE (HOT - COLD)																										
1	7	0	1	-0.15	0.0	1	236	0																		

HOUSTON, PHASE 3

	CYCLES 6-7						COMPOSITE						MASS EQUIVALENT								
	HC PPM		CO PERCENT			NO PPM			HC PPM		CO PERCENT			NO PPM			HC GM/MI		CO GM/MI			NOX GM/MI		
	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
G76																					
COLD STARTS							MEAN ODOMETER = 32658						PERCENT FAIL = 55								
	9	132	36	9	1.51	0.52	9	1016	267	9	166	78	9	1.82	0.64	9	977	258	9	2.4	1.1	9	49.11	17.41	9	5.06	1.31
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
G.M.																					
COLD STARTS							MEAN ODOMETER = 38365						PERCENT FAIL = 81								
	130	305	308	131	1.92	1.14	131	1104	462	130	321	268	131	2.28	1.09	131	1012	417	130	4.1	3.4	131	55.08	27.30	131	4.57	1.86
COLD W/ HOT STARTS							MEAN ODOMETER = 44916						PERCENT FAIL = 77								
	9	303	190	9	1.70	0.99	9	1030	484	9	328	188	9	2.22	0.84	9	912	387	9	4.0	2.2	9	51.59	22.26	9	3.71	1.22
HOT STARTS																					
	9	305	190	9	1.62	0.98	9	1117	489												
DIFFERENCE (HOT - COLD)																					
	9	2	11	9	-0.09	0.26	9	87	99												
V81																					
COLD STARTS							MEAN ODOMETER = 38537						PERCENT FAIL = 77								
	9	914	844	9	3.11	2.10	9	906	487	9	957	835	9	3.18	2.06	9	945	488	9	6.2	5.4	9	38.49	24.99	9	2.10	1.06
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
V82																					
COLD STARTS							MEAN ODOMETER = 33733						PERCENT FAIL = 20								
	5	692	975	5	1.50	1.08	5	1015	400	5	730	965	5	1.55	0.95	5	1036	414	5	5.8	7.7	5	23.03	14.20	5	2.92	1.06
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												
VOLK																					
COLD STARTS							MEAN ODOMETER = 36860						PERCENT FAIL = 57								
	14	835	862	14	2.54	1.93	14	945	445	14	876	853	14	2.59	1.89	14	977	448	14	6.0	6.0	14	32.97	22.48	14	2.40	1.09
COLD W/ HOT STARTS							MEAN ODOMETER = 0						PERCENT FAIL = 0								
	0	0	0	0	0.0	0.0	0	0	0	0	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
HOT STARTS																					
	0	0	0	0	0.0	0.0	0	0	0												
DIFFERENCE (HOT - COLD)																					
	0	0	0	0	0.0	0.0	0	0	0												

HOUSTON, PHASE 3

CYCLES 6-7									COMPOSITE									MASS EQUIVALENT								
HC PPM			CO PERCENT			NO PPM			HC PPM			CO PERCENT			NO PPM			HC GM/MI			CO GM/MI			NOXC GM/MI		
N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD	N	MEAN	STD
TOT																										
COLD STARTS						MEAN ODOMETER = 39928						PERCENT FAIL = 79														
248	329	330	249	1.89	1.15	249	1169	514	248	354	318	249	2.20	1.13	249	1083	474	248	4.1	3.0	249	49.86	26.44	249	4.64	2.04
COLD W/ HOT STARTS						MEAN ODOMETER = 44032						PERCENT FAIL = 75														
20	276	134	20	1.60	0.92	20	1279	513	20	300	132	20	2.01	0.86	20	1152	467	20	3.6	1.6	20	46.06	21.81	20	4.75	1.62
HOT STARTS																										
20	274	136	20	1.50	0.88	20	1325	498																		
DIFFERENCE (HOT - COLD)																										
20	-2	12	20	-0.10	0.20	20	46	101																		

R74

APPENDIX D

CONFORMITY ANALYSIS TABLES

1. Tables:

D-1	Conformity - Kansas City	Phase I
D-2	Conformity - Houston	Phase I
D-3	Conformity - Combined Cities	Phase I
D-4	Diagnostic - Kansas City	Phase I
D-5	Diagnostic - Houston	Phase I
D-6	Diagnostic - Combined Cities	Phase I

TABLE OF DISPLACEMENT CLASS CODES

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL
1	A01	American Motors	232	A & M	6	1
2	C11	Dodge, Plym	225	A & M	6	1
3	C12	Dodge, Plym	318	A & M	8	2
4	C13	Chry, Plym	383	A Only	8	2
5	C14	Dodge, Chry, Plym	440	A Only	8	4
6	F31	Ford	200	A & M	6	1
7	F32	Ford (1970 Maverick)	200	A & M	6	1
8	F33	Ford, Merc	302	A & M	8	2
9	F34	Ford, Merc 1969 only	351	A & M	8	2
10	F35	Ford, Merc	390	A Only	8	2
11	F36	Ford, Merc	429	A Only	8	4
12	G51	Chev	230	A Only	6	1
13	G52	Chev	250	A Only	6	1
14	G53	Chev	307	A Only	8	2
15	G54	Chev 1968 Only	327	A Only	8	4
16	G55	Chev	350	A Only	8	4
17	G56	Chev	396	A Only	8	4
18	G61	Pont	350	A Only	8	2
19	G62	Pont	400	A Only	8	2
20	G63	Pont	428	A Only	8	4
21	G66	Olds	350	A Only	8	2
22	G67	Olds	455	A Only	8	4
23	G71	Buick	350	A Only	8	4
24	G72	Buick	430	A Only	8	4
25	G76	Cadillac	472	A Only	8	4
26	V81	Volkswagen	91	A & M	4	1
27	V82	Volkswagen	97	A & M	4	FI*

* Fuel Injection

CONFORMITY TO FEDERAL 7-MODE TEST
443 CARS PHASE I KANSAS CITY

CLASS MFGR OR MAKE	NUMBER OF CARS	PERCENTAGE OF CARS						AVERAGE MILEAGE			
				HC PASS		HC FAIL		HC PASS		HC FAIL	
		HC PASS	CO PASS	CO PASS	CO FAIL	CO PASS	CO FAIL	CO PASS	CO FAIL	CO PASS	CO FAIL
A 1	15	13.3	33.3	6.7	6.7	26.7	60.0	4909	21078	12874	17921
C 11	15	66.7	33.3	26.7	40.0	6.7	26.7	14132	13024	9369	26628
C 12	18	72.2	33.3	27.8	44.4	5.6	22.2	23331	24243	14872	23056
C 13	18	50.0	33.3	22.2	27.8	11.1	38.9	13999	27321	17297	26860
C 14	15	40.0	20.0	13.3	26.7	6.7	53.3	8722	21751	10975	22615
F 31	16	68.8	68.8	56.3	12.5	12.5	18.8	21586	21736	23676	18119
F 32	16	75.0	81.3	68.8	6.3	12.5	12.5	8259	10833	8787	9093
F 33	17	11.8	76.5	5.9	5.9	70.6	17.6	30001	28657	16947	27780
F 34	16	56.3	75.0	56.3	0.0	18.8	25.0	14049	0	8155	15444
F 35	18	50.0	61.1	50.0	0.0	11.1	38.9	22394	0	26914	23025
F 36	16	50.0	25.0	12.5	37.5	12.5	37.5	15012	26629	15179	19773
G 51 CHEV	16	56.3	31.3	31.3	25.0	0.0	43.8	17629	21537	0	19263
G 52 CHEV	15	80.0	33.3	33.3	46.7	0.0	20.0	22903	15313	0	20748
G 53 CHEV	17	23.5	23.5	5.9	17.6	17.6	58.8	9013	18157	19110	23616
G 54 CHEV	18	16.7	5.6	0.0	16.7	5.6	77.8	0	33900	23036	19804
G 55 CHEV	16	37.5	18.8	18.8	18.8	0.0	62.5	14730	21940	0	13903
G 56 CHEV	15	53.3	13.3	13.3	40.0	0.0	46.7	13620	22721	0	17720
G 61 PONT	18	61.1	50.0	44.4	16.7	5.6	33.3	18290	22262	16942	17440
G 62 PONT	19	84.2	31.6	26.3	57.9	5.3	10.5	22979	26846	3620	19346
G 63 PONT	16	50.0	12.5	12.5	37.5	0.0	50.0	15313	19383	0	16968
G 66 OLDS	18	72.2	16.7	16.7	55.6	0.0	27.8	5084	13910	0	18169
G 67 OLDS	15	86.7	40.0	40.0	46.7	0.0	13.3	17669	19652	0	27244
G 71 BUICK	16	68.8	12.5	12.5	56.3	0.0	31.3	8557	24807	0	30031
G 72 BUICK	16	62.5	12.5	12.5	50.0	0.0	37.5	5361	30419	0	33784
G 76 CAD	15	93.3	73.3	73.3	20.0	0.0	6.7	20615	21391	0	30155
V 81	18	72.2	77.8	61.1	11.1	16.7	11.1	13185	14311	20541	47442
V 82	15	93.3	93.3	86.7	6.7	6.7	0.0	19280	15893	45288	0
AMER MOTORS	15	13.3	33.3	6.7	6.7	26.7	60.0	4909	21078	12874	17921
CHRYSLER	66	57.6	30.3	22.7	34.8	7.6	34.8	16441	21552	13962	24682
FORD MOTOR	99	51.5	64.6	41.4	10.1	23.2	25.3	16418	24274	16389	19899
GEN MOTORS	230	60.0	26.5	23.9	36.1	2.6	37.4	17287	22138	16821	20709
CHEVROLET	97	43.3	20.6	16.5	26.8	4.1	52.6	17694	21218	20092	19090
PONTIAC	53	66.0	32.1	28.3	37.7	3.8	30.2	19456	23920	10281	17442
OLDSMOBILE	33	78.8	27.3	27.3	51.5	0.0	21.2	13474	16274	0	20762
BUICK	32	65.6	12.5	12.5	53.1	0.0	34.4	6959	27448	0	32078
CADILLAC	15	93.3	73.3	73.3	20.0	0.0	6.7	20615	21391	0	30155
VOLKSWAGEN	33	81.8	84.8	72.7	9.1	12.1	6.1	16487	14838	26728	47442
ALL VEHICLES	443	57.8	40.2	30.7	27.1	9.5	32.7	16700	22013	16812	21395

TABLE D-1

CONFORMITY TO FEDERAL ?-MODE TEST
430 CARS PHASE I HOUSTON

CLASS MFGR OR MAKE	NUMBER OF CARS	PERCENTAGE OF CARS						AVERAGE MILEAGE			
				HC PASS CO PASS	HC PASS CO FAIL	HC FAIL CO PASS	HC FAIL CO FAIL	HC PASS CO PASS	HC PASS CO FAIL	HC FAIL CO PASS	HC FAIL CO FAIL
		HC PASS	CO PASS								
A 1	15	20.0	40.0	6.7	13.3	33.3	46.7	33364	17843	24936	22459
C 11	17	64.7	52.9	41.2	23.5	11.8	23.5	18878	19105	32790	32038
C 12	17	35.3	58.8	29.4	5.9	29.4	35.3	29714	19332	24778	26393
C 13	17	29.4	33.3	17.6	11.8	11.8	58.8	27608	24415	39630	30568
C 14	15	26.7	6.7	6.7	20.0	0.0	73.3	3180	39151	0	28085
F 31	15	73.3	86.7	66.7	6.7	20.0	6.7	32056	21129	35669	15400
F 32	19	63.2	47.4	47.4	15.8	0.0	36.8	8340	20716	0	11344
F 33	17	11.8	76.5	11.8	0.0	64.7	23.5	38343	0	24386	20665
F 34	15	20.0	40.0	13.3	6.7	26.7	53.3	11210	48925	13577	17470
F 35	15	46.7	53.3	33.3	13.3	20.0	33.3	29166	19626	24929	26069
F 36	15	46.7	6.7	6.7	40.0	0.0	53.3	15333	26714	0	23012
G 51 CHEV	15	60.0	40.0	33.3	26.7	6.7	33.3	22001	28759	35066	27234
G 52 CHEV	16	87.5	81.3	68.8	18.8	12.5	0.0	23131	19909	28216	0
G 53 CHEV	19	31.6	42.1	26.3	5.3	15.8	52.6	14132	21081	25438	24482
G 54 CHEV	16	0.0	6.3	0.0	0.0	6.3	93.8	0	0	48782	31484
G 55 CHEV	16	31.3	25.0	18.8	12.5	6.3	62.5	13787	30748	20594	24159
G 56 CHEV	15	26.7	20.0	13.3	13.3	6.7	66.7	21022	29577	36169	23177
G 61 PONT	16	37.5	31.3	12.5	25.0	18.8	43.8	21870	27618	14935	23995
G 62 PONT	15	80.0	40.0	40.0	40.0	0.0	20.0	27510	24409	0	16020
G 63 PONT	14	21.4	6.7	0.0	21.4	7.1	71.4	0	26001	27618	26357
G 66 OLDS	15	66.7	20.0	13.3	53.3	6.7	26.7	12924	22813	24136	21762
G 67 OLDS	15	66.7	26.7	26.7	40.0	0.0	33.3	21632	31110	0	25195
G 71 BUICK	15	66.7	0.0	0.0	66.7	0.0	33.3	0	32393	0	28535
G 72 BUICK	16	75.0	18.8	18.8	56.3	0.0	25.0	19770	24454	0	22220
G 76 CAD	15	100.0	80.0	80.0	20.0	0.0	0.0	17880	20662	0	0
V 81	17	52.9	70.6	47.1	5.9	23.5	23.5	20906	13560	23666	30332
V 82	16	68.8	75.0	62.5	6.3	12.5	18.8	18631	16274	27369	39697
AMER MOTORS	15	20.0	40.0	6.7	13.3	33.3	46.7	33364	17843	24936	22459
CHRYSLER	66	39.4	38.8	24.2	15.2	13.6	47.0	22920	26204	29659	29068
FORD MOTOR	96	43.8	52.1	30.2	13.5	21.9	34.4	22617	25518	24016	19142
GEN MOTORS	218	53.2	31.5	25.2	28.0	6.4	40.4	20247	26666	26423	25577
CHEVROLET	97	39.2	36.1	26.8	12.4	9.3	51.5	19943	26375	30373	26532
PONTIAC	45	46.7	26.1	17.8	28.9	8.9	44.4	26100	25764	18106	23980
OLDSMOBILE	30	66.7	23.3	20.0	46.7	3.3	30.0	18729	26369	24136	23669
BUICK	31	71.0	9.7	9.7	61.3	0.0	29.0	19770	28632	0	25728
CADILLAC	15	100.0	80.0	80.0	20.0	0.0	0.0	17880	20662	0	0
VOLKSWAGEN	33	60.6	72.7	54.5	6.1	18.2	21.2	19642	14917	24900	34345
ALL VEHICLES	429	48.4	40.7	27.8	20.6	12.9	38.8	21203	25976	25765	25188

TABLE D-2

CONFORMITY TO FEDERAL 7-MODE TEST
873 CARS PHASE I BOTH CITIES

CLASS MFGR OR MAKE	NUMBER OF CARS	PERCENTAGE OF CARS						AVERAGE MILEAGE			
				HC PASS		HC FAIL		HC PASS		HC FAIL	
		HC PASS	CO PASS	CO PASS	CO FAIL	CO PASS	CO FAIL	CO PASS	CO FAIL	CO PASS	CO FAIL
A 1	30	16.7	36.7	6.7	10.0	30.0	53.3	19137	18921	19575	19906
C 11	32	65.6	43.8	34.4	31.3	9.4	25.0	17152	15457	24983	29333
C 12	35	54.3	45.7	28.6	25.7	17.1	28.6	26523	23698	23127	25058
C 13	35	40.0	33.3	20.0	20.0	11.4	48.6	19831	26491	28463	29041
C 14	30	33.3	13.3	10.0	23.3	3.3	63.3	6874	29208	10975	25782
F 31	31	71.0	77.4	61.3	9.7	16.1	12.9	27097	21533	30872	17439
F 32	35	68.6	62.9	57.1	11.4	5.7	25.7	8295	18245	8787	10844
F 33	34	11.8	76.5	8.8	2.9	67.6	20.6	35562	28657	20505	23714
F 34	31	38.7	58.1	35.5	3.2	22.6	38.7	13533	48925	11253	16795
F 35	33	48.5	57.6	42.4	6.1	15.2	36.4	24813	19626	25723	24293
F 36	31	48.4	16.1	9.7	38.7	6.5	45.2	15119	26672	15179	21624
G 51 CHEV	31	58.1	35.5	32.3	25.8	3.2	38.7	19815	25148	35066	22584
G 52 CHEV	31	83.9	58.1	51.6	32.3	6.5	9.7	23060	16692	28216	20748
G 53 CHEV	36	27.8	33.3	16.7	11.1	16.7	55.6	13279	18888	22274	24049
G 54 CHEV	34	8.8	5.9	0.0	8.8	5.9	85.3	0	33900	35909	25846
G 55 CHEV	32	34.4	21.9	18.8	15.6	3.1	62.5	14259	25463	20594	19031
G 56 CHEV	30	40.0	16.7	13.3	26.7	3.3	56.7	17321	24435	36169	20930
G 61 PONT	34	50.0	41.2	29.4	20.6	11.8	38.2	19006	25323	15437	20970
G 62 PONT	34	82.4	35.3	32.4	50.0	2.9	14.7	25450	25986	3620	17350
G 63 PONT	30	36.7	9.7	6.7	30.0	3.3	60.0	15313	21589	27618	22184
G 66 OLDS	33	69.7	18.2	15.2	54.5	3.0	27.3	8220	17867	24136	19766
G 67 OLDS	30	76.7	33.3	33.3	43.3	0.0	23.3	19254	24941	0	25780
G 71 BUICK	31	67.7	6.5	6.5	61.3	0.0	32.3	8557	28799	0	29283
G 72 BUICK	32	68.8	15.6	15.6	53.1	0.0	31.3	14006	27261	0	29158
G 76 CAD	30	96.7	76.7	76.7	20.0	0.0	3.3	19188	21027	0	30155
V 81	35	62.9	74.3	54.3	8.6	20.0	17.1	16436	14061	22327	36035
V 82	31	80.6	83.9	74.2	6.5	9.7	9.7	18998	16084	33342	39697
AMER MOTORS	30	16.7	36.7	6.7	10.0	30.0	53.3	19137	18921	19575	19906
CHRYSLER	132	48.5	34.6	23.5	25.0	10.6	40.9	19785	22962	24181	27200
FORD MOTOR	195	47.7	58.5	35.9	11.8	22.6	29.7	18986	24977	20029	19468
GEN MOTORS	448	56.7	29.0	24.6	32.1	4.5	38.8	18767	24056	23542	23171
CHEVROLET	194	41.2	28.4	21.6	19.6	6.7	52.1	19086	22846	27209	22774
PONTIAC	98	57.1	29.3	23.5	33.7	6.1	36.7	21767	24646	15498	21074
OLDSMOBILE	63	73.0	25.4	23.8	49.2	1.6	25.4	15576	20833	24136	22397
BUICK	63	68.3	11.1	11.1	57.1	0.0	31.7	12449	28073	0	29221
CADILLAC	30	96.7	76.7	76.7	20.0	0.0	3.3	19188	21027	0	30155
VOLKSWAGEN	66	71.2	78.8	63.6	7.6	15.2	13.6	17839	14870	25631	37256
ALL VEHICLES	871	53.2	40.4	29.3	23.9	11.1	35.7	18801	23689	21888	23420

TABLE D-3

DIAGNOSTIC FOR KANSAS CITY PHASE I 443 CARS HAVE HC OR CO DATA OR BOTH

CLASS	HCPASS	HCFAIL	COPASS	COFAIL	PASSBO	PHCFCO	FHCPCO	FAILBO	SUM 1	SUM 2	SUM 3	KCARS
A 1	2	13	5	10	1	1	4	9	15	15	15	15
C 11	10	5	5	10	4	6	1	4	15	15	15	15
C 12	13	5	6	12	5	8	1	4	18	18	18	18
C 13	9	9	6	12	4	5	2	7	18	18	18	18
C 14	6	9	3	12	2	4	1	8	15	15	15	15
F 31	11	5	11	5	9	2	2	3	16	16	16	16
F 32	12	4	13	3	11	1	2	2	16	16	16	16
F 33	2	15	13	4	1	1	12	3	17	17	17	17
F 34	9	7	12	4	9	0	3	4	16	16	16	16
F 35	9	9	11	7	9	0	2	7	18	18	18	18
F 36	8	8	4	12	2	6	2	6	16	16	16	16
G 51 CHEV	9	7	5	11	5	4	0	7	16	16	16	16
G 52 CHEV	12	3	5	10	5	7	0	3	15	15	15	15
G 53 CHEV	4	13	4	13	1	3	3	10	17	17	17	17
G 54 CHEV	3	15	1	17	0	3	1	14	18	18	18	18
G 55 CHEV	6	10	3	13	3	3	0	10	16	16	16	16
G 56 CHEV	8	7	2	13	2	6	0	7	15	15	15	15
G 61 PONT	11	7	9	9	8	3	1	6	18	18	18	18
G 62 PONT	16	3	6	13	5	11	1	2	19	19	19	19
G 63 PONT	8	8	2	14	2	6	0	8	16	16	16	16
G 66 OLDS	13	5	3	15	3	10	0	5	18	18	18	18
G 67 OLDS	13	2	6	9	6	7	0	2	15	15	15	15
G 71 BUICK	11	5	2	14	2	9	0	5	16	16	16	16
G 72 BUICK	10	6	2	14	2	8	0	6	16	16	16	16
G 76 CAD	14	1	11	4	11	3	0	1	15	15	15	15
V 81	13	5	14	4	11	2	3	2	18	18	18	18
V 82	14	1	14	1	13	1	1	0	15	15	15	15
AMER MOTORS	2	13	5	10	1	1	4	9	15	15	15	15
CHRYSLER	38	28	20	46	15	23	5	23	66	66	66	66
FORD MOTOR	51	48	64	35	41	10	23	25	99	99	99	99
GEN MOTORS	138	92	61	169	55	83	6	86	230	230	230	230
CHEVROLET	42	55	20	77	16	26	4	51	97	97	97	97
PONTIAC	35	18	17	36	15	20	2	16	53	53	53	53
OLDSMOBILE	26	7	9	24	9	17	0	7	33	33	33	33
BUICK	21	11	4	28	4	17	0	11	32	32	32	32
CADILLAC	14	1	11	4	11	3	0	1	15	15	15	15
VOLKSWAGEN	27	6	28	5	24	3	4	2	33	33	33	33
ALL VEHICLES	256	187	178	265	136	120	42	145	443	443	443	443

TABLE D-4

DIAGNOSTIC FOR HOUSTON PHASE I 430 CARS HAVE HC OR CO DATA OR BOTH

CLASS	HCPASS	HCFAIL	COPASS	COFAIL	PASSBO	PHCFCO	FHCPCO	FAILBO	SUM 1	SUM 2	SUM 3	KCARS
A 1	3	12	6	9	1	2	5	7	15	15	15	15
C 11	11	6	9	8	7	4	2	4	17	17	17	17
C 12	6	11	10	7	5	1	5	6	17	17	17	17
C 13	5	12	6	12	3	2	2	10	17	18	17	17
C 14	4	11	1	14	1	3	0	11	15	15	15	15
F 31	11	4	13	2	10	1	3	1	15	15	15	15
F 32	12	7	9	10	9	3	0	7	19	19	19	19
F 33	2	15	13	4	2	0	11	4	17	17	17	17
F 34	3	12	6	9	2	1	4	8	15	15	15	15
F 35	7	8	8	7	5	2	3	5	15	15	15	15
F 36	7	8	1	14	1	6	0	8	15	15	15	15
G 51 CHEV	9	6	6	9	5	4	1	5	15	15	15	15
G 52 CHEV	14	2	13	3	11	3	2	0	16	16	16	16
G 53 CHEV	6	13	8	11	5	1	3	10	19	19	19	19
G 54 CHEV	0	16	1	15	0	0	1	15	16	16	16	16
G 55 CHEV	5	11	4	12	3	2	1	10	16	16	16	16
G 56 CHEV	4	11	3	12	2	2	1	10	15	15	15	15
G 61 PONT	6	10	5	11	2	4	3	7	16	16	16	16
G 62 PONT	12	3	6	9	6	6	0	3	15	15	15	15
G 63 PONT	3	11	1	14	0	3	1	10	14	15	14	14
G 66 OLDS	10	5	3	12	2	8	1	4	15	15	15	15
G 67 OLDS	10	5	4	11	4	6	0	5	15	15	15	15
G 71 BUICK	10	5	0	15	0	10	0	5	15	15	15	15
G 72 BUICK	12	4	3	13	3	9	0	4	16	16	16	16
G 76 CAD	15	0	12	3	12	3	0	0	15	15	15	15
V 81	9	8	12	5	8	1	4	4	17	17	17	17
V 82	11	5	12	4	10	1	2	3	16	16	16	16
AMER MOTORS	3	12	6	9	1	2	5	7	15	15	15	15
CHRYSLER	26	40	26	41	16	10	9	31	66	67	66	66
FORD MOTOR	42	54	50	46	29	13	21	33	96	96	96	96
GEN MOTORS	116	102	69	150	55	61	14	88	218	219	218	218
CHEVROLET	38	59	35	62	26	12	9	50	97	97	97	97
PONTIAC	21	24	12	34	8	13	4	20	45	46	45	45
OLDSMOBILE	20	10	7	23	6	14	1	9	30	30	30	30
BUICK	22	9	3	28	3	19	0	9	31	31	31	31
CADILLAC	15	0	12	3	12	3	0	0	15	15	15	15
VOLKSWAGEN	20	13	24	9	18	2	6	7	33	33	33	33
ALL VEHICLES	207	221	175	255	119	88	55	166	428	430	428	428

TABLE D-5

DIAGNOSTIC FOR BOTH CITIES PHASE I 873 CARS HAVE HC OR CO DATA OR BOTH

CLASS		HCPASS	HCFAIL	COPASS	COFAIL	PASSBO	PHCFCO	FHCPCO	FAILBO	SUM 1	SUM 2	SUM 3	KCARS
A 1		5	25	11	19	2	3	9	16	30	30	30	30
C 11		21	11	14	18	11	10	3	8	32	32	32	32
C 12		19	16	16	19	10	9	6	10	35	35	35	35
C 13		14	21	12	24	7	7	4	17	35	36	35	35
C 14		10	20	4	26	3	7	1	19	30	30	30	30
F 31		22	9	24	7	19	3	5	4	31	31	31	31
F 32		24	11	22	13	20	4	2	9	35	35	35	35
F 33		4	30	26	8	3	1	23	7	34	34	34	34
F 34		12	19	18	13	11	1	7	12	31	31	31	31
F 35		16	17	19	14	14	2	5	12	33	33	33	33
F 36		15	16	5	26	3	12	2	14	31	31	31	31
G 51	CHEV	18	13	11	20	10	8	1	12	31	31	31	31
G 52	CHEV	26	5	18	13	16	10	2	3	31	31	31	31
G 53	CHEV	10	26	12	24	6	4	6	20	36	36	36	36
G 54	CHEV	3	31	2	32	0	3	2	29	34	34	34	34
G 55	CHEV	11	21	7	25	6	5	1	20	32	32	32	32
G 56	CHEV	12	18	5	25	4	8	1	17	30	30	30	30
G 61	PONT	17	17	14	20	10	7	4	13	34	34	34	34
G 62	PONT	28	6	12	22	11	17	1	5	34	34	34	34
G 63	PONT	11	19	3	28	2	9	1	18	30	31	30	30
G 66	OLDS	23	10	6	27	5	18	1	9	33	33	33	33
G 67	OLDS	23	7	10	20	10	13	0	7	30	30	30	30
G 71	BUICK	21	10	2	29	2	19	0	10	31	31	31	31
G 72	BUICK	22	10	5	27	5	17	0	10	32	32	32	32
G 76	CAD	29	1	23	7	23	6	0	1	30	30	30	30
F 81		22	13	26	9	19	3	7	6	35	35	35	35
F 82		25	6	26	5	23	2	3	3	31	31	31	31
[illegible] MOTORS		5	25	11	19	2	3	9	16	30	30	30	30
[illegible]		64	68	46	87	31	33	14	54	132	133	132	132
[illegible]		93	102	114	81	70	23	44	58	195	195	195	195
[illegible] MOTOR		256	194	130	319	110	144	20	174	448	449	448	448
[illegible] MOTORS		80	114	55	139	42	38	13	101	194	194	194	194
[illegible]		56	42	29	70	23	33	6	36	98	99	98	98
[illegible]		46	17	16	47	15	31	1	16	63	63	63	63
[illegible]		63	20	7	56	7	36	0	20	63	63	63	63
[illegible]		29	1	23	7	23	6	0	1	30	30	30	30
[illegible]		67	19	52	14	42	5	10	9	66	66	66	66
[illegible]		463	408	353	520	255	208	97	311	871	873	871	871

PAGE 2

TABLE D-6

APPENDIX E

ANALYSIS OF VARIANCE

E-1 Methods For Unbalanced Analysis of Variance

1. Text:

E-1.1 Summary

E-1.2 Unbalanced Designs

E-1.3 Exact Methods

E-1.4 The Method of Unweighted Means

E-1.5 Implementation

E-1.6 Example

E-1.7 Approximate Error Structure of ANVAR

2. Tables:

E-1 Annotated Data Retrieval Program Output Error Terms for Non-Transformed Data.

E-2 Calculation Sheet for Unbalanced ANVAR

E-3 Generalized Crossed Three-way Analysis of Variance

E-2 ANVAR MEANS Tables

1. Legend and Interpretations of ANVAR Means Tables

E-2.1 Non-Transformed Means Tables

1. Tables:

E-4 Cycles 6-7:Kansas City, Houston, Combined Cities, Combined Phases; for HC, CO, NO and NOC

E-5 Composite Kansas City, Houston, Combined Cities, Combined Phases; for HC, CO, NO and NOC

APPENDIX E

ANALYSIS OF VARIANCE
(Cont'd)

E-6 Mass Composite: Kansas City, Houston, Combined Cities, Combined Phases; for HC, CO, NO and NOC.

E-2.2 Log Transformed Means Tables

1. Tables:

E-7 Cycles 6-7; Kansas City, Houston, Combined Cities, Combined Phases; for HC, CO, NO and NOC.

E-8 Composite: Kansas City, Houston, Combined Cities, Combined Phases; for HC, CO, NO and NOC

E-3 Calculations For Unbalanced ANVAR

1. Introduction.

2. Tables:

E-28 Summary Tables ANVAR F-Values

E-29 Work Sheets - Calculations for Unbalanced ANVAR

E-1 METHODS FOR UNBALANCED ANALYSIS OF VARIANCE

E-1.1 Summary

The Method of Unweighted Means is described for handling unbalanced analyses of variance (UANVAR). An example is presented.

E-1.2 Unbalanced Designs

The usual analysis of variance (ANVAR) is applied to a balanced design. For example, a simple experiment involving two car makes in three cities (a 2 x 3 "crossed" design) would normally have exactly the same number of tests in each city on each car make. If some tests are found to be invalid, the design becomes "unbalanced". The heart of ANVAR methodology is balance so unbalanced designs need special treatment. In addition they are statistically weaker than balanced designs so that more measurements are needed to reach sound conclusions.

In this work there is a basic three-way crossed design with 2 cities, 3 phases and 27 vehicle classes giving 162 city-phase-class combinations which are termed subclasses below. The number of tests in each subclass ranges from 19 down to 5 and is often not the same for HC, CO, and NOx. These results must be handled by a UANVAR since all balance has been lost. Fortunately there

are an adequate number of data points - they total over 2000 - so that sound statistical conclusions can be obtained.

E-1.3 Exact Methods

An exact method is available for handling the calculations for UANVAR using direct linear least squares analysis. The procedure is usually termed The Method of Fitting Constants. It is described in detail in the statistical literature and has been applied successfully to a smaller automotive exhaust surveillance project (see the work of George Wm. Thomson in Section 5-7 of Ethyl Corporation Final Report GR 69-12 on Public Health Service Contract No. CPA-22-69-12, Sept. 1969). This study included a covariance study of the effect of mileage as part of the handling of the UANVAR.

Unfortunately for the present project, the number of variable levels is much larger than usual and few computer programs are designed to handle the large number of "dummy variables" involved. For example, the complete treatment of a 2 x 27 x 3 crossed design with all interactions needs 1 dummy variable for the mean, 1 + 26 + 2 = 29 for the main effects, (1)(26) + (1)(2) + (26)(2) = 80 for the two-way interactions and (1)(26)(2) = 52 for the three-way interactions. That is, 30 then 110 then 162 as we consider higher interaction terms. This method is impractical. A proposed alternative method, the

Method of Weighted Squares of Means offers no advantage if interactions are considered.

E-1.4 The Method of Unweighted Means

The Method of Unweighted Means is the most practical method of solving a large UANVAR, when every subclass has at least one value. The results are close to the exact values by the least squares analysis and are very good if the number of tests in the subclass is reasonably large (only a few less than 7 or so) and the ratio of the largest to smallest number of tests in the subclasses is fairly small (say less than 4 or 5). In this method, the UANVAR is handled as if it were balanced with one item in each subclass. This item is the mean of the values in the subclass.

The Sums of Squares and Mean Squares in the resulting analysis of variance output are for an analysis of test means, not individual test values. To put them on an individual test basis they must be scaled up by multiplying by a special type of average of the number of tests in the subclasses. This average n_{ave} is the harmonic mean, defined by

$$\frac{1}{n_{ave}} = \frac{1}{m} \cdot \left[\frac{1}{n_1} + \ldots + \frac{1}{n_m}\right]$$

where m (here 162) is the number of subclasses and n_1 to n_m are the numbers of tests in each subclass.

E-1.5 Implementation

In order to implement this procedure, the pertinent data were

obtained from the data bank using a Data Retrieval Program. For each separate effluent variable, good data were retrieved for each subclass. The subclass mean was calculated, to be used as input to a balanced ANVAR program. The sum of squares of deviations from this mean was calculated and cumulated into a "pool" for all the subclasses; the number of degrees of freedom was similarly pooled. The value of 1/n, the reciprocal of the number of good data points for that particular variable, was also cumulated. Finally, the sum of squares and degrees of freedom were similarly cumulated for the replicates in the subclass. The output of the Data Retrieval Program was thus a deck of 162 cards, one for each subclass, with the subclass mean and identifiers. The printed output was a record of the operations for each subclass. For each of the twelve variables:

subclass mean

sums of squares about the mean
i.e. the car-to-car variability

degrees of freedom

standard deviation

sums of squares for replicates
i.e. the test-to-test variability

number of replicates

Finally, following the last subclass, for each emission variable:

average number in subclass, n_{ave}

degrees of freedom

pooled sum of squares, car-to-car

corresponding mean square

number of replicates

pooled replication sum of squares, test-to-test

corresponding replication mean square

These calculations and the ensuing balanced ANVAR calculations, were repeated using a logarithm to base 10 transform. All sums of squares, mean squares, etc. are in log units. The means have been back-transformed to the original units for convenience.

E-1.6 Example

The calculation of the effects for the UANVAR is shown here - there are 23 other examples in Appendix E-3. Table E-1 below is part of the output of the Data Retrieval Program. Effluent 5 is composite HC, ppm. The pertinent data are

n_{ave} = 11.652792

1864 degrees of freedom

Sum of Squares = 87995896.8

Mean Square = 47208.0992

Table E-2 gives the output of the balanced ANVAR, which is on a mean basis. For convenience the Mean Squares have

Table E-1

Annotated Data Retrieval Program Output

Error Terms for non-transform Data

n_{ave}

From pool of subclass data

EFF	REC 1/N	DF	SS	MS
1	0.1165279200 02	1864	0.8889138570 08	0.4768851160 05
2	0.1167453080 02	1867	0.1871141260 04	0.1002278140 01
3	0.1143984520 02	1807	0.4242599880 09	0.2347960330 06
4	0.1143984520 02	1807	0.4077350480 09	0.2256419740 06
5	0.1165279200 02	1864	0.8799589680 08	0.4720809920 05
6	0.1167453080 02	1867	0.1806012920 04	0.9673741840 00
7	0.1143599960 02	1806	0.3532407740 09	0.1955928980 06
8	0.1143599960 02	1806	0.3428443280 09	0.1898362830 06
9	0.1165279200 02	1864	0.1151379760 05	0.6176930050 01
10	0.1167453080 02	1867	0.9217466310 06	0.4937044760 03
11	0.1143599960 02	1806	0.5117717930 04	0.2833730860 01
12	0.1143599960 02	1806	0.4996877680 04	0.2766820420 01

EFF	REPL	REPL SS	REPL MS
1	173	0.8340890000 06	0.4821323700 04
2	173	0.1050985000 02	0.6075057800-01
3	173	0.6530258500 07	0.3774715900 05
4	173	0.7646483900 07	0.4419932890 05
5	173	0.8339035000 06	0.4820251450 04
6	173	0.1364880000 02	0.7889479770-01
7	173	0.5060447000 07	0.2925113870 05
8	173	0.6231079200 07	0.3601779890 05
9	173	0.1336939000 03	0.7727971100 00
10	173	0.8188225550 04	0.4733078350 02
11	173	0.7390590000 02	0.4272017340 00
12	173	0.9224840000 02	0.5332277460 00

Cycle 6, 7

1 HC
2 CO
3 NOX
4 NOX_{corr}

Composite, concn.

5 HC
6 CO
7 NOX
8 NOX_{corr}

Composite, mass

9 HC
10 CO
11 NOX
12 NOX_{corr}

Table E-2 [illegible]

Calculation Sheet for Unbalanced ANVAR

Composite HC, ppm
(non-transform data)

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.598818984E 05	0.598818984E 05	20.74
T	54	2	0.179149844E 05	0.895749219E 04	3.10
CXT	27	2	0.135873047E 05	0.679365234E 04	2.35
D	6	26	0.114708900E 07	0.441495742E 05	15.29
CXD	3	26	0.306764000E 06	0.117986133E 05	4.09
TXD	2	52	0.193247000E 06	0.371628833E 04	1.29
ERROR		52	0.150169438E 06	0.288787378E 04	
ADJUSTED TOTAL		161	0.188945363D 07		
CORRECTION TERM		1	0.174746939D 08		
UNADJUSTED TOTAL		162	0.193641476D 08		

Effect	Degrees of Freedom	Mean Squares/10000		F-Value	
		Mean Basis	Individual Basis	Calcd.	Tables[b]
D	26	4.415	51.45	10.90*	1.50
T	2	0.896	10.44	2.21	3.00
C	1	5.988	69.78	14.78*	3.84
T×D	52	0.372	4.33	0.92	1.36
T×C	2	0.679	7.92	1.68	3.00
D×C	26	1.180	13.75	2.91*	1.50
T×D×C	52	0.289	3.37	0.71	1.36
Error	1864	—	4.72[c]	1.00	

a. Mean of an average of 11.6528 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 217 ppm.

been divided by 10000 before tabulation below. The data from the preceding table are entered and the Mean Squares (unrounded) are scaled up by n_{ave} here 11.652792. F-values are computed by dividing by the error term. Three are beyond the 5 per cent point and are marked by an asterisk.

E-1.7 Approximate Error Structure of ANVAR

The interpretation of the analyses of variance (ANVAR) depends on the error structure which is assumed to underlie the measurements. The unbalanced ANVAR in the present treatment has been replaced by a balanced ANVAR laid out as a "crossed three-way factorial design", with one value in each subclass. (The value is the subclass mean used in the analysis of the unbalanced ANVAR by the Method of Unweighted Means.) The error structure depends on whether the effects are considered "fixed" or "random". The vehicle classes are good examples of "fixed" or discrete effects - the interpretation of the tests is limited to these 27 classes and should not be extended to say, Rolls Royces or mini-bubble cars. Similarly, the phases are "fixed" effects - we could not possibly arrange for Phase III to be followed by Phase I. Random allocation to phases is impossible. Since one intent of the Contract is the investigation of possible city differences and the conclusions are to apply to differences between Kansas City and Houston, it would appear the cities must also be a "fixed" effect. (This discussion ignores the

problem of the odometer differences between cities at the same phase. This matter is discussed in the body of the text on the interpretation of city and phase effects.)

The generalized error structure for a balanced crossed three-way analysis of variance is shown in Table E-3. Here A, B, and C represent any three factors; a, b, and c are the corresponding number of factors and the K symbols are a shorthand for the random or fixed factors. K is 1 for random factors and 0 for fixed factors.

For fixed effects, the expected (or long time average) values of the ANVAR mean squares have very simple forms. The subscript identifies the "component of variance".

Mean Square	Degrees of Freedom	Expected Value of Mean Square
D	26	$\sigma_e^2 + 6\,\sigma_D^2$
T	2	$\sigma_e^2 + 54\,\sigma_T^2$
C	1	$\sigma_e^2 + 81\,\sigma_C^2$
T x D	52	$\sigma_e^2 + 2\,\sigma_{TD}^2$
T x C	2	$\sigma_e^2 + 27\,\sigma_{TC}^2$
D x C	26	$\sigma_e^2 + 3\,\sigma_{DC}^2$
T x D x C	52	$\sigma_e^2 + \sigma_{TDC}^2$
Error	-	σ_e^2

This structure is used for analysis of the emission data. (Exact analysis for an unbalanced ANVAR using the Method of Fitting Constants will lead to the same structure but different numerical factors than given above.)

Table E-3

Generalized Crossed Three-Way Analysis of Variance

Mean Square	Degrees of Freedom	σ^2_e	σ^2_{ABC}	σ^2_{AB}	σ^2_{BC}	σ^2_{AC}	σ^2_A	σ^2_B	σ^2_C	$(\mu - \mu_0)^2$
A	a-1	1	$k_b k_c n$	$k_b nc$	0	$k_c nb$	nbc	0	0	0
B	b-1	1	$k_a k_c n$	$k_a nc$	$k_c na$	0	0	nac	0	0
C	c-1	1	$k_a k_b n$	0	$k_b na$	$k_a nb$	0	0	wab	0
AB	(a-1)(b-1)	1	$k_c n$	nc	0	0	0	0	0	0
BC	(b-1)(c-1)	1	$k_a n$	0	na	0	0	0	0	0
AC	(a-1)(c-1)	1	$k_b n$	0	0	nb	0	0	0	0
ABC	(a-1)(b-1)(c-1)	1	w	0	0	0	0	0	0	0
Error (ABC)	abc (n-1)	1	0	0	0	0	0	0	0	0
$(\bar{x} - \mu_0)^2$	Total - 1	1	$k_a b c k_c n$	$k_a k_b nc$	$k_b k_c na$	$k_a k_c nb$	$k_a nbc$	$k_b nac$	$k_c nab$	$nabc$

$\geq \sigma^2_{ABC}$

Average Value of Mean Squares
Three-Way Crossed Design
w Replicates per (ABC) cell

Cf. Bennett and Franklin, p. 394
with more complex notation

$k_a \equiv \left(1 - \frac{a}{A}\right)$

where A = total number of
A-levels in the population.

O.W. Thomson

E-2

ANVAR MEANS TABLES

LEGEND AND INTERPRETATION OF ANVAR MEANS TABLES

Key Words	Description
DISPLACEMENT	Code for each displacement class. See accompanying table for explanation of code.
CITY 1	Kansas City
City 2	Houston

NOTE:

In the Method of Unweighted Means for handling the unbalanced analysis of variance each of the 1962 city-phase-vehicle displacement subclasses is taken to be of equal weight regardless of the number of vehicles in each subclass. This is reflected in the values of every average derived from the subclass averages.

For example, the averages for Kansas City, Houston, and both cities combined, for composite data in Tables E-5 and E-6 of the ANVAR means are based on equal weights for each subclass.

	Kansas City	Houston	Both Cities
HC, ppm	309	348	328
CO, percent	1.91	2.11	2.01
NO_x, ppm	1478	1227	1353
NO_xC, ppm	1354	1312	1333

The corresponding grand averages for the two cities and for both cities combined with every data point being given equal weight can be obtained from the mileage regression tables (Appendices G-4, 5, 6, 10, 11, and 12):

	Kansas City	Houston	Both Cities
HC, ppm	308	344	326
CO, percent	1.90	2.08	1.99
NO_x, ppm	1493	1248	1377
NO_xC, ppm	1360	1329	1345

The two sets of averages are less than two percent different.

TABLE OF DISPLACEMENT CLASS CODES

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL
1	A01	American Motors	232	A & M	6	1
2	C11	Dodge, Plym	225	A & M	6	1
3	C12	Dodge, Plym	318	A & M	8	2
4	C13	Chry, Plym	383	A Only	8	2
5	C14	Dodge, Chry, Plym	440	A Only	8	4
6	F31	Ford	200	A & M	6	1
7	F32	Ford (1970 Maverick)	200	A & M	6	1
8	F33	Ford, Merc	302	A & M	8	2
9	F34	Ford, Merc 1969 only	351	A & M	8	2
10	F35	Ford, Merc	390	A Only	8	2
11	F36	Ford, Merc	429	A Only	8	4
12	G51	Chev	230	A Only	6	1
13	G52	Chev	250	A Only	6	1
14	G53	Chev	307	A Only	8	2
15	G54	Chev 1968 Only	327	A Only	8	4
16	G55	Chev	350	A Only	8	4
17	G56	Chev	396	A Only	8	4
18	G61	Pont	350	A Only	8	2
19	G62	Pont	400	A Only	8	2
20	G63	Pont	428	A Only	8	4
21	G66	Olds	350	A Only	8	2
22	G67	Olds	455	A Only	8	4
23	G71	Buick	350	A Only	8	4
24	G72	Buick	430	A Only	8	4
25	G76	Cadillac	472	A Only	8	4
26	V81	Volkswagen	91	A & M	4	1
27	V82	Volkswagen	97	A & M	4	FI*

* Fuel Injection

E-2.1

NON TRANSFORMED MEANS TABLES

TABLE E-4

Cycles 6-7

Kansas City

Houston

Combined Cities

Combined Phases

HC
CO
NO
NOC

KANSAS CITY CYCLE 6-7 HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	309.67	329.23	337.78	325.56
2	225.20	260.50	239.80	241.83
3	238.06	287.75	293.00	272.94
4	368.89	278.25	263.56	303.56
5	259.73	355.18	418.11	344.34
6	238.94	255.31	238.33	244.19
7	230.94	258.93	248.46	246.11
8	320.53	363.73	547.00	410.42
9	254.94	299.25	279.30	277.83
10	269.61	244.75	230.89	248.42
11	242.06	239.33	275.67	252.35
12	305.50	279.73	267.56	284.26
13	199.40	187.61	193.08	193.37
14	342.82	426.79	379.60	383.07
15	332.28	398.56	347.67	359.50
16	293.50	301.18	256.33	283.67
17	264.73	268.25	260.00	264.33
18	233.94	223.29	196.33	217.85
19	219.00	222.83	205.89	215.91
20	264.19	301.90	303.25	289.78
21	206.06	232.86	240.00	226.30
22	187.67	280.08	227.11	231.62
23	224.81	352.09	277.71	284.87
24	234.94	249.83	241.78	242.18
25	158.27	173.50	166.25	166.01
26	299.89	473.00	463.33	412.07
27	254.40	301.14	407.60	321.05
TOTAL	258.52	290.55	289.09	279.38

HOUSTON CYCLE 6-7 HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	300.27	278.36	296.60	291.74
2	231.88	275.42	256.40	254.57
3	455.82	312.83	277.42	348.69
4	293.76	235.67	306.88	278.77
5	303.00	292.83	237.73	277.85
6	301.27	274.92	308.20	294.80
7	261.89	292.10	315.25	289.75
8	367.29	455.36	323.38	387.01
9	317.40	305.09	332.40	318.30
10	253.33	224.25	252.00	243.19
11	326.67	251.45	332.43	303.52
12	224.40	266.61	252.40	247.80
13	219.00	174.42	196.60	196.67
14	351.53	415.83	480.78	416.05
15	515.44	452.54	380.00	449.33
16	301.00	289.73	307.36	299.37
17	637.47	398.45	746.56	594.16
18	262.19	238.30	238.00	246.16
19	236.67	231.50	206.27	224.81
20	343.57	319.33	359.56	340.82
21	279.40	282.71	278.73	280.28
22	240.87	181.00	269.33	230.40
23	251.27	247.33	227.91	242.17
24	225.56	225.73	221.86	224.38
25	145.87	140.58	132.22	139.56
26	579.76	691.50	914.89	728.72
27	335.69	382.33	692.60	470.21
TOTAL	317.12	301.34	338.66	319.04

CYCLE 6-7 HC

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	304.97	303.80	317.19	308.65
	2	228.54	267.96	248.10	248.20
	3	346.94	300.29	285.21	310.81
	4	331.33	256.96	285.22	291.17
	5	281.37	324.01	327.92	311.10
	6	270.10	265.12	273.27	269.49
	7	246.42	275.51	281.86	267.93
	8	343.91	409.55	435.19	396.22
	9	286.17	302.17	305.85	298.06
	10	261.47	234.50	241.44	245.81
	11	284.36	245.39	304.05	277.94
	12	264.95	273.17	259.98	266.03
	13	209.20	181.02	194.84	195.02
	14	347.17	421.31	430.19	399.56
	15	423.86	425.55	363.83	404.42
	16	297.25	295.46	281.85	291.52
	17	451.10	333.35	503.28	429.24
	18	248.07	230.79	217.17	232.01
	19	227.83	227.17	206.08	220.36
	20	303.88	310.62	331.40	315.30
	21	242.73	257.79	259.36	253.29
	22	214.27	230.54	248.22	231.01
	23	238.04	299.71	252.81	263.52
	24	230.25	237.78	231.82	233.28
	25	152.07	157.04	149.24	152.78
	26	439.83	582.25	689.11	570.40
	27	295.04	341.74	550.10	395.63
	TOTAL	287.82	295.95	313.87	299.21
CITY-					
	1	258.52	290.55	289.09	279.38
	2	317.12	301.34	338.66	319.04
	TOTAL	287.82	295.95	313.87	299.21

CYCLE 6-7 HC

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	325.56	291.74	308.65
2	241.83	254.57	248.20
3	272.94	348.69	310.81
4	303.56	278.77	291.17
5	344.34	277.85	311.10
6	244.19	294.80	269.49
7	246.11	289.75	267.93
8	410.42	382.01	396.22
9	277.83	318.30	298.06
10	248.42	243.19	245.81
11	252.35	303.52	277.94
12	284.26	247.80	266.03
13	193.37	196.67	195.02
14	383.07	416.05	399.56
15	359.50	449.33	404.42
16	283.67	299.37	291.52
17	264.33	594.16	429.24
18	217.85	246.16	232.01
19	215.91	224.81	220.36
20	289.78	340.82	315.30
21	226.30	280.28	253.29
22	231.62	230.40	231.01
23	284.87	242.17	263.52
24	242.18	224.38	233.28
25	166.01	139.56	152.78
26	412.07	728.72	570.40
27	321.05	470.21	395.63
TOTAL	279.38	319.04	299.21

KANSAS CITY CYCLE 6-7 CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.74	1.93	1.39	1.69
2	1.18	1.25	1.18	1.21
3	1.31	1.78	1.61	1.57
4	1.82	2.05	2.07	1.98
5	2.10	2.61	2.32	2.34
6	1.47	2.29	1.35	1.71
7	0.87	1.19	1.38	1.14
8	1.15	1.19	1.10	1.14
9	0.95	0.90	1.01	0.96
10	1.25	1.30	1.49	1.35
11	2.03	1.91	2.12	2.02
12	1.43	1.81	1.85	1.70
13	1.53	0.99	0.85	1.13
14	1.50	1.65	1.93	1.69
15	2.34	2.99	2.84	2.72
16	1.90	1.64	1.41	1.65
17	1.54	1.76	2.07	1.86
18	1.30	1.27	1.23	1.26
19	1.25	1.24	1.09	1.21
20	1.81	1.73	1.51	1.69
21	1.60	1.86	1.61	1.69
22	1.10	2.40	1.79	1.76
23	2.17	2.68	2.01	2.29
24	1.87	2.04	1.63	1.85
25	1.07	1.07	1.26	1.13
26	1.75	1.99	2.03	1.92
27	1.11	1.50	1.02	1.21
TOTAL	1.52	1.74	1.61	1.62

HOUSTON CYCLE 6-7 CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.63	1.69	1.57	1.63
2	1.45	2.17	1.84	1.82
3	1.30	1.79	1.93	1.67
4	1.87	1.35	1.95	1.72
5	2.58	2.75	1.52	2.28
6	0.90	0.88	1.06	0.94
7	1.20	2.61	2.53	2.11
8	1.01	1.42	1.63	1.35
9	1.42	1.20	1.67	1.43
10	1.38	1.39	1.52	1.43
11	2.29	2.34	2.77	2.47
12	1.04	1.32	1.26	1.21
13	0.71	0.64	1.13	0.83
14	1.50	1.50	1.48	1.49
15	3.30	3.48	2.45	3.08
16	1.47	1.46	1.78	1.57
17	2.27	2.31	2.33	2.30
18	1.30	1.22	1.57	1.36
19	1.22	1.42	1.47	1.37
20	2.07	2.25	3.16	2.49
21	1.77	2.17	2.07	2.00
22	1.88	1.43	2.43	1.91
23	2.53	2.37	2.76	2.55
24	1.56	1.49	1.62	1.56
25	0.92	1.00	1.51	1.14
26	2.46	2.45	3.11	2.68
27	1.73	1.93	1.50	1.72
TOTAL	1.66	1.78	1.91	1.78

CYCLE 6-7 CO

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	1.69	1.81	1.48	1.66
	2	1.31	1.71	1.51	1.51
	3	1.31	1.78	1.77	1.62
	4	1.84	1.7C	2.01	1.85
	5	2.34	2.68	1.92	2.31
	6	1.18	1.59	1.20	1.32
	7	1.03	1.90	1.95	1.63
	8	1.08	1.30	1.36	1.25
	9	1.18	1.05	1.34	1.19
	10	1.31	1.34	1.50	1.39
	11	2.16	2.13	2.45	2.25
	12	1.23	1.57	1.56	1.45
	13	1.12	0.82	0.99	0.98
	14	1.50	1.57	1.70	1.59
	15	2.82	3.23	2.65	2.90
	16	1.69	1.55	1.59	1.61
	17	1.90	2.04	2.30	2.08
	18	1.30	1.25	1.39	1.31
	19	1.24	1.36	1.28	1.29
	20	1.94	1.99	2.34	2.09
	21	1.68	2.02	1.84	1.85
	22	1.49	1.91	2.11	1.84
	23	2.35	2.53	2.39	2.42
	24	1.71	1.77	1.62	1.70
	25	0.99	1.03	1.39	1.14
	26	2.10	2.22	2.57	2.30
	27	1.42	1.72	1.26	1.46
	TOTAL	1.59	1.76	1.76	1.70
CITY-					
	1	1.52	1.74	1.61	1.62
	2	1.66	1.78	1.91	1.78
	TOTAL	1.59	1.76	1.76	1.70

CYCLE 6-7 CO

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1.69	1.63	1.66
2	1.21	1.82	1.51
3	1.57	1.67	1.62
4	1.98	1.72	1.85
5	2.34	2.28	2.31
6	1.71	0.94	1.32
7	1.14	2.11	1.63
8	1.14	1.35	1.25
9	0.96	1.43	1.19
10	1.35	1.43	1.39
11	2.02	2.47	2.25
12	1.70	1.21	1.45
13	1.13	0.83	0.98
14	1.69	1.49	1.59
15	2.72	3.08	2.90
16	1.65	1.57	1.61
17	1.86	2.30	2.08
18	1.26	1.36	1.31
19	1.21	1.37	1.29
20	1.69	2.49	2.09
21	1.69	2.00	1.85
22	1.76	1.91	1.84
23	2.29	2.55	2.42
24	1.85	1.56	1.70
25	1.13	1.14	1.14
26	1.92	2.68	2.30
27	1.21	1.72	1.46
TOTAL	1.62	1.78	1.70

KANSAS CITY CYCLE 6-7 NO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1933.13	1610.00	2030.78	1857.97
2	2216.93	1943.50	2145.40	2101.94
3	1934.67	1721.92	1864.22	1840.27
4	1853.29	1529.92	1709.00	1697.40
5	1380.20	1184.36	1379.44	1314.67
6	2071.56	1680.15	2285.11	2012.27
7	2177.00	1832.57	2008.77	2006.11
8	2098.18	1793.13	1828.91	1906.74
9	1899.06	1730.25	2123.70	1917.67
10	1955.28	1665.75	1938.56	1853.19
11	1193.50	1154.42	1036.11	1128.01
12	1399.88	1215.45	1221.11	1278.81
13	1478.20	1359.08	1513.33	1450.20
14	1766.88	1519.86	1694.20	1660.31
15	1350.78	925.63	1130.56	1135.65
16	1768.88	1770.18	1928.11	1822.39
17	1316.60	1192.13	965.14	1157.96
18	1712.72	155[illegible].07	1641.56	1637.45
19	1653.79	1538.00	1439.22	1543.67
20	1485.38	1538.60	1589.88	1537.95
21	1405.22	1241.93	1242.90	1296.68
22	1597.40	1220.25	1274.44	1364.03
23	1422.56	1129.82	1491.57	1347.98
24	1556.75	1323.33	1808.89	1562.99
25	1735.40	1535.67	1445.38	1572.15
26	1613.06	1456.07	1253.22	1440.78
27	1477.60	1156.29	1511.00	1381.[illegible]3
TOTAL	1683.48	1463.94	1611.13	1586.18

HOUSTON CYCLE 6-7 NO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1554.33	1533.91	1331.10	1473.11
2	1620.07	1992.33	1675.40	1762.60
3	1614.08	1498.17	1357.83	1490.02
4	1441.80	1753.58	1167.25	1454.21
5	983.00	1058.67	1019.36	1020.34
6	2114.54	2117.15	1681.50	1971.06
7	1736.58	1265.40	1032.75	1344.91
8	1902.80	1978.27	1493.88	1791.65
9	1587.77	1639.00	1287.00	1504.59
10	1220.50	1470.67	1177.90	1289.69
11	1207.54	1007.91	674.86	963.44
12	1389.57	1344.38	1299.70	1344.55
13	1266.53	1443.33	1145.30	1285.06
14	1478.31	1706.75	1393.11	1526.06
15	712.77	790.82	881.78	795.12
16	1825.21	1681.07	1455.91	1654.06
17	1068.29	1033.91	689.78	930.66
18	1611.00	1994.00	1371.88	1658.96
19	1512.08	1518.42	1218.54	1416.35
20	1264.57	1355.08	1103.44	1241.03
21	1169.85	1091.93	921.27	1061.02
22	1263.64	1287.50	868.17	1139.77
23	1071.15	1126.25	853.73	1017.04
24	1267.46	1484.73	1172.25	1308.15
25	1410.13	1649.83	1016.33	1358.77
26	1348.67	1249.67	906.33	1168.22
27	914.43	1157.22	1015.00	1028.88
TOTAL	1390.99	1452.96	1155.97	1333.31

CYCLE 6-7 NO

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	1743.73	1571.95	1680.94	1665.54
	2	1918.50	1967.92	1910.40	1932.27
	3	1774.37	1610.04	1611.03	1665.15
	4	1647.55	1641.75	1438.13	1575.81
	5	1181.60	1121.52	1199.40	1167.51
	6	2093.05	1898.65	1983.31	1991.67
	7	1956.79	1548.99	1520.76	1675.51
	8	2000.49	1885.70	1661.39	1849.19
	9	1743.42	1684.63	1705.35	1711.13
	10	1587.89	1568.21	1558.23	1571.44
	11	1200.52	1081.16	855.48	1045.72
	12	1394.72	1279.92	1260.41	1311.68
	13	1372.37	1401.20	1329.32	1367.63
	14	1622.59	1613.30	1543.66	1593.18
	15	1031.77	858.22	1006.17	965.39
	16	1797.04	1725.62	1692.01	1738.23
	17	1192.44	1113.02	827.46	1044.31
	18	1661.86	1776.04	1506.72	1648.20
	19	1582.94	1528.21	1328.88	1480.01
	20	1374.97	1446.84	1346.66	1389.49
	21	1287.53	1166.93	1082.09	1178.85
	22	1430.52	1253.88	1071.31	1251.90
	23	1246.86	1128.03	1172.65	1182.51
	24	1412.11	1404.03	1490.57	1435.57
	25	1572.77	1592.75	1230.85	1465.46
	26	1480.86	1352.87	1079.78	1304.50
	27	1196.01	1156.75	1263.00	1205.26
	TOTAL	1537.23	1458.44	1383.55	1459.74
CITY-					
	1	1683.48	1463.94	1611.13	1586.18
	2	1390.99	1452.96	1155.97	1333.31
	TOTAL	1537.23	1458.45	1383.55	1459.74

CYCLE 6-7 NO

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1857.97	1473.11	1665.54
2	2101.94	1762.60	1932.27
3	1840.27	1490.02	1665.15
4	1697.40	1454.21	1575.81
5	1314.67	1020.34	1167.51
6	2012.27	1971.06	1991.67
7	2006.11	1344.91	1675.51
8	1906.74	1791.65	1849.19
9	1917.67	1504.59	1711.13
10	1853.19	1289.69	1571.44
11	1128.01	963.44	1045.72
12	1278.81	1344.55	1311.68
13	1450.20	1285.06	1367.63
14	1660.31	1526.06	1593.18
15	1135.65	795.12	965.39
16	1822.39	1654.06	1738.23
17	1157.96	930.66	1044.31
18	1637.45	1658.96	1648.20
19	1543.67	1416.35	1480.01
20	1537.95	1241.03	1389.49
21	1296.68	1061.02	1178.85
22	1364.03	1139.77	1251.90
23	1347.98	1017.04	1182.51
24	1562.99	1308.15	1435.57
25	1572.15	1358.77	1465.46
26	1440.78	1168.22	1304.50
27	1381.63	1028.88	1205.26
TOTAL	1586.18	1333.30	1459.74

KANSAS CITY CYCLE 6-7 NOC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1631.87	1556.07	1938.35	1708.76
2	1900.25	1897.60	1852.36	1889.40
3	1666.32	1752.58	1680.70	1699.87
4	1582.25	1574.64	1493.39	1550.09
5	1169.60	1223.87	1258.50	1217.32
6	1752.30	1625.64	2020.16	1799.36
7	1817.61	1888.67	1824.91	1843.73
8	1832.78	1849.30	1587.00	1756.36
9	1598.85	1781.95	1859.14	1746.64
10	1706.35	1680.74	1701.56	1696.22
11	1019.32	1145.80	1063.46	1076.19
12	1182.50	1132.38	1058.09	1124.32
13	1264.94	1381.86	1297.75	1314.85
14	1539.44	1601.52	1458.24	1533.06
15	1162.16	930.39	965.06	1019.20
16	1527.58	1786.23	1678.78	1664.20
17	1123.78	1207.90	826.22	1052.63
18	1468.53	1493.01	1503.34	1488.29
19	1446.71	1471.35	1333.32	1417.12
20	1267.98	1483.31	1470.21	1407.17
21	1221.67	1212.58	1146.12	1193.46
22	1363.94	1232.14	1301.70	1299.26
23	1225.23	1123.68	1424.16	1257.69
24	1326.12	1326.71	1567.17	1406.66
25	1469.30	1493.05	1389.22	1450.52
26	1415.15	1429.70	1148.42	1331.09
27	1267.76	1098.03	1403.99	1256.59
TOTAL	1442.60	1458.54	1453.75	1451.63

316

HOUSTON CYCLE 6-7 NOC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1680.25	1506.81	1552.57	1579.87
2	1726.97	1956.24	1945.70	1876.30
3	1700.33	1528.19	1535.21	1587.91
4	1545.99	1678.31	1384.40	1536.24
5	1035.18	1050.31	1235.33	1106.94
6	2377.88	2114.53	2000.49	2164.30
7	1790.49	1220.78	1173.60	1394.96
8	2084.37	1997.96	1707.46	1929.93
9	1688.46	1623.50	1549.63	1620.53
10	1305.78	1432.85	1380.20	1372.94
11	1307.03	989.67	801.27	1032.66
12	1525.58	1318.99	1511.23	1451.93
13	1367.06	1404.19	1375.63	1382.29
14	1548.79	1632.81	1599.01	1593.54
15	750.79	798.30	1009.93	853.01
16	1963.62	1696.61	1629.32	1763.18
17	1217.28	1063.59	776.50	1019.12
18	1672.85	2005.66	1627.51	1768.67
19	1549.79	1492.50	1362.07	1468.12
20	1448.11	1328.69	1261.20	1346.00
21	1232.62	1097.04	1045.79	1125.15
22	1332.33	1292.89	969.39	1198.20
23	1194.62	1084.35	1012.41	1097.13
24	1339.29	1444.26	1359.02	1380.86
25	1542.13	1665.29	1190.68	1466.03
26	1440.22	1291.09	1016.60	1249.31
27	961.58	1142.94	1176.10	1093.54
TOTAL	1493.68	1439.20	1340.30	1424.39

CYCLE 6-7 NOC

217<

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	1656.06	1531.44	1745.46	1644.32
	2	1813.61	1926.92	1899.03	1879.85
	3	1683.33	1640.39	1607.96	1643.89
	4	1564.12	1626.48	1438.90	1543.16
	5	1102.39	1137.09	1246.92	1162.13
	6	2065.09	1870.08	2010.32	1981.83
	7	1804.05	1554.72	1499.26	1619.34
	8	1958.58	1923.63	1647.23	1843.15
	9	1643.66	1702.72	1704.38	1683.59
	10	1506.07	1556.79	1540.88	1534.58
	11	1163.18	1067.74	932.36	1054.42
	12	1354.04	1225.69	1284.66	1288.13
	13	1316.00	1393.02	1336.69	1348.57
	14	1544.11	1617.17	1528.62	1563.30
	15	956.47	864.35	987.50	936.11
	16	1745.60	1741.42	1654.05	1713.69
	17	1170.53	1135.75	801.36	1035.88
	18	1570.69	1749.33	1565.42	1628.48
	19	1498.25	1481.93	1347.70	1442.62
	20	1358.05	1406.00	1365.70	1376.58
	21	1227.15	1154.81	1095.95	1159.30
	22	1348.14	1262.52	1135.54	1248.73
	23	1209.93	1104.01	1218.28	1177.41
	24	1332.70	1385.48	1463.10	1393.76
	25	1505.72	1579.17	1289.95	1458.28
	26	1427.68	1360.40	1082.51	1290.20
	27	1114.67	1120.48	1290.05	1175.07
	TOTAL	1468.14	1448.87	1397.03	1438.01
CITY-					
	1	1442.60	1458.54	1453.75	1451.63
	2	1493.68	1439.20	1340.30	1424.39
	TOTAL	1468.14	1448.87	1397.03	1438.01

CYCLE 6-7 NOC

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1708.76	1579.87	1644.32
2	1883.40	1876.30	1879.85
3	1699.87	1587.91	1643.89
4	1550.09	1536.24	1543.16
5	1217.32	1106.94	1162.13
6	1799.36	2164.30	1981.83
7	1843.73	1394.96	1619.34
8	1756.36	1929.93	1843.15
9	1746.64	1620.53	1683.59
10	1696.22	1372.94	1534.58
11	1076.19	1032.66	1054.43
12	1124.32	1451.93	1288.13
13	1314.85	1382.29	1348.57
14	1533.06	1593.54	1563.30
15	1019.20	853.01	936.11
16	1664.20	1763.18	1713.69
17	1052.63	1019.12	1035.88
18	1488.29	1768.67	1628.48
19	1417.12	1468.12	1442.62
20	1407.17	1346.00	1376.58
21	1193.46	1125.15	1159.30
22	1299.26	1198.20	1248.73
23	1257.69	1097.13	1177.41
24	1406.66	1380.86	1393.76
25	1450.52	1466.03	1458.28
26	1331.09	1249.31	1290.20
27	1256.59	1093.54	1175.07
TOTAL	1451.63	1424.39	1438.01

TABLE E-5

Composite

Kansas City

Houston

Combined Cities

Combined Phases

HC
CO
NO
NOC

KANSAS CITY COMPOSITE HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	346.07	366.85	376.44	363.12
2	270.47	302.58	291.80	288.28
3	275.94	326.42	319.44	307.27
4	399.06	339.00	307.78	348.61
5	285.13	402.09	498.89	395.37
6	260.13	279.92	263.22	267.76
7	253.63	315.36	276.15	281.71
8	344.47	397.67	571.64	437.92
9	281.38	336.42	316.80	311.53
10	295.72	277.13	263.67	278.84
11	288.81	258.67	305.44	284.31
12	331.94	333.36	332.89	332.73
13	233.53	220.15	222.92	225.53
14	370.94	453.43	401.10	408.49
15	361.94	430.06	386.56	392.85
16	320.13	321.09	286.89	309.37
17	288.13	293.88	291.14	291.05
18	255.11	251.07	219.89	242.02
19	240.16	235.33	225.22	233.57
20	287.50	318.70	323.63	309.94
21	245.78	267.36	273.80	262.31
22	217.60	288.33	239.56	248.50
23	247.69	352.54	292.29	297.51
24	254.44	259.17	259.89	257.83
25	181.33	187.17	183.38	183.96
26	339.61	528.40	475.22	447.74
27	272.93	330.86	417.60	340.46
TOTAL	287.02	321.22	319.38	309.21

HOUSTON COMPOSITE HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	326.87	351.82	330.60	336.43
2	299.06	354.50	383.90	345.82
3	466.71	337.08	302.00	368.60
4	332.47	277.00	334.00	314.49
5	353.40	328.33	264.09	315.27
6	335.73	295.08	323.10	317.97
7	281.53	331.80	353.00	322.11
8	387.53	483.73	329.38	400.21
9	348.80	350.82	347.80	349.14
10	308.47	284.83	267.30	286.87
11	353.40	275.00	380.71	336.37
12	265.87	303.38	289.30	286.18
13	236.38	209.00	227.40	224.26
14	373.32	437.67	498.44	436.48
15	533.88	500.09	402.11	478.69
16	329.69	311.13	323.36	321.39
17	647.33	398.91	688.33	578.19
18	280.44	259.50	260.38	266.77
19	254.40	250.33	221.45	242.06
20	357.36	330.67	364.89	350.97
21	310.87	313.57	304.82	309.75
22	257.60	198.70	276.33	244.21
23	274.60	275.83	248.18	266.20
24	246.06	257.45	242.29	248.60
25	166.47	205.58	166.56	179.54
26	604.76	693.58	957.11	751.82
27	367.38	427.44	730.40	508.41
TOTAL	344.46	334.92	363.60	347.66

COMPOSITE HC

3226

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	336.47	359.33	353.52	349.77
	2	284.76	328.54	337.85	317.05
	3	371.32	331.75	310.72	337.93
	4	365.76	308.00	320.89	331.55
	5	319.27	365.21	381.49	355.32
	6	297.93	287.50	293.16	292.86
	7	267.58	323.58	314.58	301.91
	8	366.00	440.70	450.51	419.07
	9	315.09	343.62	332.30	330.33
	10	302.09	280.98	265.48	282.85
	11	321.11	266.83	343.08	310.34
	12	298.90	318.37	311.09	309.46
	13	234.95	214.58	225.16	224.90
	14	372.13	445.55	449.77	422.48
	15	447.91	465.08	394.33	435.77
	16	324.91	316.11	305.13	315.38
	17	467.73	346.39	489.74	434.62
	18	267.77	255.29	240.13	254.40
	19	247.28	242.83	223.34	237.82
	20	322.43	324.68	344.26	330.46
	21	278.32	290.46	289.31	286.03
	22	237.60	243.52	257.94	246.35
	23	261.14	314.19	270.23	281.86
	24	250.25	258.31	251.09	253.22
	25	173.90	196.37	174.97	181.75
	26	472.19	610.99	716.17	599.78
	27	320.15	379.15	574.00	424.43
	TOTAL	315.74	328.07	341.49	328.43
CITY-					
	1	287.02	321.22	319.38	309.21
	2	344.46	334.92	363.60	347.66
	TOTAL	315.74	328.07	341.49	328.43

COMPOSITE HC 323<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	363.12	336.43	349.77
2	288.28	345.82	317.05
3	307.27	368.60	337.93
4	348.61	314.49	331.55
5	395.37	315.27	355.32
6	267.76	317.97	292.86
7	281.71	322.11	301.91
8	437.97	400.21	419.07
9	311.53	349.14	330.33
10	278.84	286.87	282.85
11	284.31	336.37	310.34
12	332.73	286.18	309.46
13	225.53	224.26	224.90
14	408.49	436.48	422.48
15	392.85	478.69	435.77
16	309.37	321.39	315.38
17	291.05	578.19	434.62
18	242.02	266.77	254.40
19	233.57	242.06	237.82
20	309.94	350.97	330.46
21	262.31	309.75	286.03
22	248.50	244.21	246.35
23	297.51	266.20	281.86
24	257.83	248.60	253.22
25	183.96	179.54	181.75
26	447.74	751.82	599.78
27	340.46	508.41	424.43
TOTAL	309.21	347.66	328.43

KANSAS CITY COMPOSITE CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.86	1.98	1.52	1.79
2	1.71	1.60	1.69	1.67
3	1.66	2.07	2.06	1.93
4	2.04	2.23	2.28	2.18
5	2.47	2.93	2.59	2.66
6	1.66	2.42	1.61	1.89
7	1.09	1.38	1.54	1.33
8	1.33	1.32	1.29	1.32
9	1.17	1.11	1.24	1.17
10	1.46	1.44	1.73	1.55
11	2.38	2.06	2.23	2.23
12	1.83	2.32	2.35	2.17
13	1.96	1.41	1.33	1.57
14	1.73	1.86	2.24	1.94
15	2.79	3.24	3.10	3.04
16	2.33	2.23	2.00	2.19
17	1.89	2.02	2.55	2.16
18	1.63	1.55	1.47	1.55
19	1.64	1.52	1.38	1.51
20	2.37	2.11	1.99	2.16
21	2.04	2.24	1.97	2.08
22	1.78	2.61	1.94	2.11
23	2.62	2.95	2.27	2.61
24	2.25	2.21	2.03	2.17
25	1.30	1.13	1.48	1.31
26	1.93	2.16	2.18	2.09
27	1.14	1.51	1.04	1.23
TOTAL	1.85	1.99	1.89	1.91

HOUSTON COMPOSITE CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.79	1.92	1.74	1.81
2	1.91	2.60	2.36	2.29
3	1.67	2.11	2.22	2.00
4	2.11	1.63	2.21	1.98
5	2.94	3.14	1.88	2.65
6	1.06	1.19	1.25	1.17
7	1.44	2.83	2.71	2.33
8	1.20	1.63	1.66	1.49
9	1.80	1.67	1.96	1.81
10	1.64	1.61	1.67	1.64
11	2.50	2.77	3.12	2.80
12	1.55	1.82	1.77	1.71
13	1.15	1.27	1.56	1.33
14	1.82	1.89	1.85	1.85
15	3.60	3.82	3.02	3.48
16	1.95	2.00	2.27	2.07
17	2.52	2.59	2.69	2.60
18	1.65	1.62	1.79	1.69
19	1.60	1.76	1.71	1.69
20	2.33	2.57	3.36	2.76
21	2.21	2.57	2.41	2.40
22	2.21	1.87	2.57	2.22
23	3.05	2.95	3.09	3.03
24	1.99	2.07	2.09	2.05
25	1.25	1.55	1.82	1.54
26	2.57	2.56	3.18	2.77
27	1.82	1.97	1.55	1.78
TOTAL	1.97	2.15	2.20	2.11

COMPOSITE CO

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	1.82	1.95	1.63	1.80
	2	1.81	2.10	2.03	1.98
	3	1.66	2.09	2.14	1.97
	4	2.07	1.93	2.24	2.08
	5	2.70	3.03	2.23	2.66
	6	1.36	1.80	1.43	1.53
	7	1.27	2.11	2.13	1.83
	8	1.26	1.48	1.47	1.41
	9	1.49	1.39	1.60	1.49
	10	1.55	1.53	1.70	1.59
	11	2.44	2.42	2.68	2.51
	12	1.69	2.07	2.06	1.94
	13	1.56	1.34	1.45	1.45
	14	1.78	1.87	2.04	1.90
	15	3.19	3.53	3.06	3.26
	16	2.14	2.12	2.14	2.13
	17	2.21	2.31	2.62	2.38
	18	1.64	1.59	1.63	1.62
	19	1.62	1.64	1.54	1.60
	20	2.35	2.34	2.68	2.46
	21	2.12	2.41	2.19	2.24
	22	2.00	2.24	2.26	2.17
	23	2.84	2.95	2.68	2.82
	24	2.12	2.14	2.06	2.11
	25	1.28	1.34	1.65	1.42
	26	2.25	2.36	2.68	2.43
	27	1.48	1.74	1.29	1.51
	TOTAL	1.91	2.07	2.05	2.01
CITY-					
	1	1.85	1.99	1.89	1.91
	2	1.97	2.15	2.20	2.11
	TOTAL	1.91	2.07	2.05	2.01

COMPOSITE CO 327<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1.79	1.81	1.80
2	1.67	2.29	1.98
3	1.93	2.00	1.97
4	2.18	1.98	2.08
5	2.66	2.65	2.66
6	1.89	1.17	1.53
7	1.33	2.33	1.83
8	1.32	1.49	1.41
9	1.17	1.81	1.49
10	1.55	1.64	1.59
11	2.23	2.80	2.51
12	2.17	1.71	1.94
13	1.57	1.33	1.45
14	1.94	1.85	1.90
15	3.04	3.48	3.26
16	2.19	2.07	2.13
17	2.16	2.60	2.38
18	1.55	1.69	1.62
19	1.51	1.69	1.60
20	2.16	2.76	2.46
21	2.08	2.40	2.24
22	2.11	2.22	2.17
23	2.61	3.03	2.82
24	2.17	2.05	2.11
25	1.31	1.54	1.42
26	2.09	2.77	2.43
27	1.23	1.78	1.51
TOTAL	1.91	2.11	2.01

KANSAS CITY COMPOSITE NO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1847.07	1528.31	1930.78	1768.72
2	2007.87	1815.25	1919.80	1914.30
3	1762.61	1538.67	1571.56	1624.28
4	1749.12	1407.75	1602.00	1586.29
5	1270.53	1058.09	1269.78	1199.47
6	1999.19	1628.46	2139.33	1922.33
7	2064.13	1732.86	1892.08	1896.35
8	1968.94	1681.07	1749.82	1799.94
9	1777.63	1585.50	1963.80	1775.64
10	1837.67	1594.69	1780.00	1737.45
11	1113.06	1095.50	993.67	1067.41
12	1280.44	1076.82	1107.89	1155.05
13	1337.07	1210.77	1367.83	1305.22
14	1688.00	1449.14	1580.60	1572.58
15	1244.39	874.06	1050.33	1056.26
16	1617.00	1576.00	1730.11	1641.04
17	1233.13	1097.25	904.57	1078.32
18	1573.67	1417.64	1522.33	1504.55
19	1491.21	1397.17	1347.11	1411.83
20	1329.88	1380.00	1415.50	1375.13
21	1288.78	1134.14	1150.10	1191.01
22	1420.60	1128.92	1198.78	1249.43
23	1304.06	1057.00	1395.57	1252.21
24	1440.63	1256.67	1657.44	1451.58
25	1670.33	1516.58	1357.25	1514.72
26	1650.06	1467.67	1267.00	1461.57
27	1519.60	1183.43	1508.30	1403.78
TOTAL	1573.58	1366.27	1495.31	1478.38

HOUSTON COMPOSITE NC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1438.53	1417.36	1239.70	1365.20
2	1562.14	1738.42	1504.10	1601.55
3	1416.92	1351.67	1250.33	1339.64
4	1342.93	1592.83	1068.75	1334.84
5	883.57	934.58	930.45	916.20
6	2026.46	1959.23	1606.80	1864.16
7	1609.10	1186.20	962.75	1252.68
8	1793.00	1831.64	1452.00	1692.21
9	1421.38	1438.54	1176.00	1345.31
10	1143.25	1326.92	1096.90	1189.02
11	1127.82	887.82	602.00	872.55
12	1250.79	1205.92	1153.60	1203.44
13	1146.67	1276.42	1033.40	1157.16
14	1408.85	1548.25	1297.44	1418.18
15	661.15	728.82	759.67	716.55
16	1659.29	1505.93	1318.45	1494.56
17	1000.64	972.73	635.89	869.75
18	1467.69	1753.80	1267.38	1498.29
19	1349.92	1352.17	1103.36	1268.48
20	1156.71	1221.83	1011.11	1129.89
21	1074.08	979.00	860.09	971.06
22	1157.57	1170.20	821.83	1049.87
23	971.38	992.00	794.54	919.31
24	1157.92	1318.91	1084.00	1186.94
25	1318.13	1460.17	977.67	1251.99
26	1363.67	1297.00	945.22	1201.96
27	901.00	1139.33	1036.00	1025.44
TOTAL	1289.28	1318.06	1073.68	1227.01

COMPOSITE NO

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	1642.80	1472.84	1585.24	1566.96
	2	1785.00	1776.83	1711.95	1757.93
	3	1589.77	1445.17	1410.94	1481.96
	4	1546.03	1500.29	1335.38	1460.56
	5	1077.05	996.34	1100.12	1057.83
	6	2012.82	1793.85	1873.07	1893.24
	7	1836.61	1459.53	1427.41	1574.52
	8	1880.97	1756.35	1600.91	1746.08
	9	1599.50	1512.02	1569.90	1560.48
	10	1490.46	1460.80	1438.45	1463.24
	11	1120.44	991.66	797.83	969.98
	12	1265.61	1141.37	1130.74	1179.24
	13	1241.87	1243.59	1200.62	1228.69
	14	1548.42	1498.70	1439.02	1495.38
	15	952.77	801.44	905.00	886.40
	16	1638.14	1540.97	1524.28	1567.80
	17	1116.89	1034.99	770.23	974.03
	18	1520.68	1585.72	1394.85	1500.42
	19	1420.56	1374.67	1225.24	1340.16
	20	1243.29	1300.92	1213.31	1252.50
	21	1181.43	1056.57	1005.10	1081.03
	22	1289.09	1149.56	1010.31	1149.65
	23	1137.72	1024.50	1095.06	1085.76
	24	1299.27	1287.79	1370.72	1319.26
	25	1494.23	1488.37	1167.46	1383.35
	26	1506.86	1382.33	1106.11	1331.77
	27	1210.30	1161.38	1272.15	1214.61
	TOTAL	1431.43	1342.17	1284.49	1352.69
CITY-					
	1	1573.58	1366.27	1495.31	1478.38
	2	1289.28	1318.06	1073.68	1227.01
	TOTAL	1431.43	1342.17	1284.49	1352.70

COMPOSITE NO 3214

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1768.72	1365.20	1566.96
2	1914.30	1601.55	1757.93
3	1624.28	1339.64	1481.96
4	1586.29	1334.84	1460.56
5	1199.47	916.20	1057.83
6	1922.33	1864.16	1893.25
7	1896.35	1252.68	1574.52
8	1799.94	1692.21	1746.08
9	1775.64	1345.31	1560.48
10	1737.45	1189.02	1463.24
11	1067.41	872.55	969.98
12	1155.05	1203.44	1179.24
13	1305.27	1152.16	1228.69
14	1572.58	1418.18	1495.38
15	1056.26	716.55	886.40
16	1641.04	1494.56	1567.80
17	1078.32	869.75	974.04
18	1504.55	1496.29	1500.42
19	1411.83	1268.48	1340.16
20	1375.13	1129.89	1252.51
21	1191.01	971.06	1081.03
22	1249.43	1049.87	1149.65
23	1252.21	919.31	1085.76
24	1451.58	1186.94	1319.26
25	1514.72	1251.99	1383.35
26	1461.57	1201.96	1331.77
27	1403.78	1025.44	1214.61
TOTAL	1478.38	1227.00	1352.69

KANSAS CITY COMPOSITE NOC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1558.84	1479.46	1843.59	1627.30
2	1722.02	1776.47	1659.43	1719.31
3	1517.38	1565.49	1414.57	1499.15
4	1493.90	1448.94	1400.61	1447.82
5	1076.92	1093.97	1160.72	1110.54
6	1690.98	1572.79	1892.14	1719.64
7	1723.40	1783.58	1717.10	1741.36
8	1720.47	1735.70	1514.95	1657.04
9	1496.82	1631.18	1720.72	1616.24
10	1603.63	1608.40	1563.49	1591.84
11	950.25	1088.70	1026.60	1021.85
12	1081.51	1002.57	958.91	1014.33
13	1145.08	1231.43	1172.99	1183.17
14	1470.92	1527.76	1360.11	1452.93
15	1070.58	878.21	897.05	948.62
16	1396.05	1591.75	1507.80	1498.54
17	1052.34	1113.34	775.51	980.40
18	1349.36	1357.85	1400.57	1369.26
19	1305.11	1336.25	1253.36	1298.24
20	1134.54	1334.23	1310.02	1259.60
21	1120.86	1107.45	1065.12	1097.81
22	1212.77	1140.41	1227.45	1193.54
23	1123.20	1048.35	1334.71	1168.75
24	1227.71	1258.14	1442.08	1309.31
25	1414.19	1477.76	1307.96	1399.97
26	1447.33	1439.52	1160.12	1348.99
27	1303.54	1123.76	1400.59	1275.97
TOTAL	1348.51	1361.24	1351.42	1353.72

HOUSTON COMPOSITE NOC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1555.61	1392.12	1443.03	1463.59
2	1665.93	1708.18	1748.83	1707.65
3	1491.46	1378.85	1411.02	1427.11
4	1441.74	1525.63	1267.69	1411.68
5	927.90	928.10	1127.83	994.61
6	2279.46	1958.98	1911.14	2049.86
7	1661.98	1145.08	1095.22	1300.76
8	1964.02	1852.02	1664.55	1826.86
9	1512.26	1428.08	1414.23	1451.52
10	1223.25	1299.23	1284.80	1269.10
11	1219.34	872.24	718.11	936.56
12	1372.80	1182.95	1343.42	1299.72
13	1238.38	1241.27	1242.96	1240.87
14	1477.13	1481.17	1490.96	1483.08
15	696.33	735.61	873.69	768.54
16	1783.17	1523.51	1474.48	1593.72
17	1140.37	1002.46	716.13	952.98
18	1524.81	1764.79	1504.60	1598.06
19	1382.20	1330.14	1233.55	1315.30
20	1325.20	1198.92	1156.84	1226.99
21	1131.25	984.27	977.34	1030.95
22	1222.09	1179.43	918.06	1106.53
23	1083.90	956.78	941.17	993.95
24	1224.21	1282.84	1257.93	1254.99
25	1441.56	1474.60	1145.34	1353.83
26	1456.31	1339.43	1063.54	1286.43
27	949.52	1124.39	1199.73	1091.21
TOTAL	1384.89	1307.07	1245.41	1312.46

COMPOSITE NOC

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	1557.22	1435.79	1643.31	1545.44
	2	1693.98	1742.33	1704.13	1713.48
	3	1504.42	1472.17	1412.79	1463.13
	4	1467.82	1487.28	1334.15	1429.75
	5	1002.41	1011.03	1144.28	1052.57
	6	1985.22	1765.89	1901.64	1884.25
	7	1692.69	1464.33	1406.16	1521.06
	8	1842.24	1793.86	1589.75	1741.95
	9	1504.54	1529.63	1567.47	1533.88
	10	1413.44	1453.82	1424.15	1430.47
	11	1084.79	980.47	872.35	979.21
	12	1227.16	1092.76	1151.17	1157.03
	13	1191.73	1236.35	1207.98	1212.02
	14	1474.02	1504.46	1425.53	1468.01
	15	883.46	806.91	885.37	858.58
	16	1589.61	1557.63	1491.14	1546.13
	17	1096.35	1057.90	745.82	966.69
	18	1437.09	1561.32	1452.58	1483.66
	19	1343.65	1333.20	1243.46	1306.77
	20	1229.87	1266.57	1233.43	1243.29
	21	1126.06	1045.86	1021.23	1064.38
	22	1217.43	1159.92	1072.76	1150.03
	23	1103.55	1002.57	1137.94	1081.35
	24	1225.96	1270.49	1350.01	1282.15
	25	1427.88	1476.18	1226.65	1376.90
	26	1451.82	1389.47	1111.83	1317.71
	27	1126.53	1124.08	1300.16	1183.59
	TOTAL	1366.70	1334.16	1298.42	1333.09
CITY-					
	1	1348.51	1361.24	1351.42	1353.72
	2	1384.89	1307.07	1245.41	1312.46
	TOTAL	1366.70	1334.16	1298.42	1333.09

COMPOSITE NOC 225<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1627.30	1463.59	1545.44
2	1719.31	1707.65	1713.48
3	1499.15	1427.11	1463.13
4	1447.82	1411.68	1429.75
5	1110.54	994.61	1052.57
6	1718.64	2049.86	1884.25
7	1741.36	1300.76	1521.06
8	1657.04	1826.86	1741.95
9	1616.24	1451.52	1533.88
10	1591.84	1269.10	1430.47
11	1021.85	936.56	979.21
12	1014.33	1299.72	1157.03
13	1183.17	1240.87	1212.02
14	1452.93	1483.08	1468.01
15	948.62	768.54	858.58
16	1498.54	1593.72	1546.13
17	980.40	952.98	966.69
18	1369.26	1598.06	1483.66
19	1298.24	1315.30	1306.77
20	1259.60	1226.99	1243.29
21	1097.81	1030.95	1064.38
22	1193.54	1106.53	1150.03
23	1168.75	993.95	1081.35
24	1309.31	1254.99	1282.15
25	1399.97	1353.83	1376.90
26	1348.99	1286.43	1317.71
27	1275.97	1091.21	1183.59
TOTAL	1353.72	1312.46	1333.09

TABLE E-6

Mass Composite

Kansas City

Houston

Combined Cities

Combined Phases

HC
CO
NO
NOC

KANSAS CITY MASS MC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	3.49	3.67	3.96	3.71
2	2.80	3.04	2.90	2.91
3	3.37	3.99	3.91	3.76
4	5.39	4.56	4.11	4.69
5	3.82	5.33	6.77	5.31
6	2.78	3.04	2.84	2.89
7	2.50	3.09	2.70	2.76
8	4.21	4.90	7.14	5.42
9	3.43	4.03	3.83	3.76
10	3.95	3.68	3.45	3.69
11	4.13	3.70	4.34	4.06
12	3.82	3.82	3.77	3.81
13	2.79	2.63	2.67	2.70
14	4.59	5.65	4.96	5.06
15	4.68	5.56	5.12	5.12
16	4.00	4.17	3.74	3.97
17	3.78	3.88	3.82	3.83
18	3.17	3.11	2.70	3.00
19	3.23	3.16	3.03	3.14
20	3.89	4.32	4.42	4.21
21	3.17	3.44	3.54	3.38
22	2.97	3.93	3.26	3.39
23	3.35	4.81	3.98	4.05
24	3.47	3.53	3.54	3.51
25	2.61	2.69	2.63	2.65
26	2.21	3.43	3.08	2.91
27	2.21	2.67	3.43	2.77
TOTAL	3.47	3.85	3.84	3.72

HOUSTON MASS HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	3.23	3.49	3.33	3.35
2	3.03	3.58	3.81	3.47
3	5.60	4.19	3.75	4.52
4	4.35	3.61	4.34	4.10
5	4.77	4.51	3.56	4.28
6	3.62	3.11	3.35	3.36
7	2.69	3.20	3.35	3.08
8	4.84	5.97	4.04	4.95
9	4.27	4.31	4.20	4.26
10	4.07	3.77	3.49	3.78
11	5.05	3.89	5.43	4.79
12	3.08	3.51	3.34	3.31
13	2.75	2.44	2.66	2.61
14	4.45	5.19	5.98	5.21
15	6.69	6.24	4.98	5.97
16	4.19	3.94	4.06	4.06
17	8.27	5.16	8.79	7.41
18	3.51	3.25	3.23	3.33
19	3.37	3.36	2.96	3.23
20	4.82	4.50	4.99	4.77
21	3.91	3.95	3.83	3.90
22	3.51	2.71	3.76	3.33
23	3.60	3.64	3.25	3.50
24	3.36	3.51	3.29	3.39
25	2.39	2.95	2.39	2.58
26	3.94	4.50	6.17	4.87
27	2.91	3.39	5.79	4.03
TOTAL	4.08	3.92	4.15	4.05

MASS HC

229<

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	3.36	3.58	3.65	3.53
2	2.72	3.31	3.36	3.19
3	4.48	4.09	3.83	4.14
4	4.87	4.09	4.22	4.39
5	4.30	4.92	5.17	4.79
6	3.20	3.08	3.09	3.13
7	2.59	3.15	3.03	2.92
8	4.52	5.44	5.59	5.18
9	3.85	4.17	4.01	4.01
10	4.01	3.72	3.47	3.73
11	4.59	3.80	4.89	4.42
12	3.45	3.67	3.56	3.56
13	2.77	2.53	2.66	2.66
14	4.52	5.42	5.47	5.14
15	5.68	5.90	5.05	5.54
16	4.09	4.06	3.90	4.02
17	6.03	4.52	6.30	5.62
18	3.34	3.18	2.97	3.16
19	3.30	3.26	2.99	3.18
20	4.35	4.41	4.70	4.49
21	3.54	3.70	3.69	3.64
22	3.24	3.32	3.51	3.36
23	3.48	4.22	3.62	3.77
24	3.41	3.52	3.42	3.45
25	2.50	2.82	2.51	2.61
26	3.08	3.97	4.62	3.89
27	2.56	3.03	4.61	3.40
TOTAL	3.78	3.88	4.00	3.89
CITY-				
1	3.47	3.85	3.84	3.72
2	4.08	3.92	4.15	4.05
TOTAL	3.78	3.88	4.00	3.89

MASS HC 340<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	3.71	3.35	3.53
2	2.91	3.47	3.19
3	3.76	4.52	4.14
4	4.69	4.10	4.39
5	5.31	4.28	4.79
6	2.89	3.36	3.13
7	2.76	3.08	2.92
8	5.42	4.95	5.18
9	3.76	4.26	4.01
10	3.69	3.78	3.73
11	4.06	4.79	4.42
12	3.81	3.31	3.56
13	2.70	2.61	2.66
14	5.06	5.21	5.14
15	5.12	5.97	5.54
16	3.97	4.06	4.02
17	3.83	7.41	5.62
18	3.00	3.33	3.16
19	3.14	3.23	3.18
20	4.21	4.77	4.49
21	3.38	3.90	3.64
22	3.39	3.33	3.36
23	4.05	3.50	3.77
24	3.51	3.39	3.45
25	2.65	2.58	2.61
26	2.91	4.87	3.89
27	2.77	4.03	3.40
TOTAL	3.72	4.05	3.89

KANSAS CITY MASS CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	34.40	36.81	29.66	33.62
2	33.29	30.04	32.05	31.79
3	37.83	47.59	47.38	44.27
4	51.49	56.14	56.99	54.87
5	61.28	72.90	64.92	66.37
6	33.48	50.03	33.24	38.92
7	19.87	25.05	27.46	24.13
8	30.55	30.57	29.70	30.27
9	26.68	24.80	27.98	26.48
10	36.75	36.16	42.86	38.59
11	64.28	55.63	59.73	59.88
12	39.26	49.86	50.53	46.55
13	44.10	32.14	30.36	35.53
14	40.04	42.85	51.14	44.68
15	67.72	78.20	77.06	74.33
16	54.40	54.57	49.04	52.67
17	46.58	50.52	63.20	53.43
18	38.05	35.93	33.87	35.95
19	41.33	38.18	34.90	38.14
20	60.27	53.66	50.89	54.94
21	49.36	54.17	47.72	50.42
22	45.74	66.94	49.56	54.08
23	66.69	75.65	58.10	66.81
24	57.90	56.74	51.93	55.52
25	35.34	30.69	40.06	35.36
26	23.73	26.47	26.65	25.61
27	17.23	22.76	15.97	18.66
TOTAL	42.88	45.74	43.81	44.14

HOUSTON MASS CO 342<

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	33.63	36.44	33.69	34.58
2	36.93	48.89	44.62	43.48
3	38.01	49.27	51.58	46.29
4	51.75	39.65	54.16	49.52
5	74.62	80.98	47.53	67.71
6	21.23	23.49	24.46	23.06
7	25.68	51.22	48.38	41.76
8	28.03	37.38	38.12	34.51
9	41.63	38.87	45.09	41.86
10	40.74	39.91	40.82	40.49
11	66.97	73.77	83.47	74.74
12	33.74	39.54	38.46	37.25
13	25.13	27.93	34.20	29.09
14	40.36	41.93	40.89	41.06
15	85.12	89.13	70.88	81.71
16	46.25	47.56	53.71	49.17
17	61.18	63.55	64.91	63.21
18	38.81	38.27	41.89	39.66
19	39.61	44.57	42.86	42.35
20	59.15	65.70	86.21	70.35
21	52.26	60.90	56.97	56.71
22	56.75	47.95	65.86	56.86
23	74.81	72.72	75.88	74.47
24	51.16	52.99	53.42	52.52
25	33.74	41.93	49.11	41.59
26	31.65	31.33	38.49	33.82
27	27.14	29.35	23.03	26.50
TOTAL	45.04	48.71	49.95	47.90

MASS CO

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	34.01	36.62	31.67	34.10
	2	35.11	39.46	38.33	37.64
	3	37.92	48.43	49.48	45.28
	4	51.62	47.90	55.57	51.70
	5	67.95	76.94	56.23	67.04
	6	27.36	36.76	28.85	30.99
	7	22.78	38.14	37.92	32.94
	8	29.29	33.98	33.91	32.39
	9	34.15	31.83	36.53	34.17
	10	38.75	38.03	41.84	39.54
	11	65.63	64.70	71.60	67.31
	12	36.50	44.70	44.49	41.90
	13	34.61	30.03	32.28	32.31
	14	40.20	42.39	46.02	42.87
	15	76.42	83.67	73.97	78.02
	16	50.32	51.07	51.38	50.92
	17	53.88	57.03	64.06	58.32
	18	38.43	37.10	37.88	37.80
	19	40.47	41.37	38.88	40.24
	20	59.71	59.68	68.55	62.65
	21	50.81	57.53	52.35	53.56
	22	51.24	57.45	57.71	55.47
	23	70.75	74.18	66.99	70.64
	24	54.53	54.87	52.67	54.02
	25	34.54	36.31	44.58	38.48
	26	27.69	28.90	32.57	29.72
	27	22.19	26.05	19.50	22.58
	TOTAL	43.96	47.23	46.88	46.02
CITY-					
	1	42.88	45.74	43.81	44.14
	2	45.04	48.71	49.95	47.90
	TOTAL	43.96	47.23	46.88	46.02

MASS CO

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	33.62	34.58	34.10
2	31.79	43.48	37.64
3	44.27	46.29	45.28
4	54.87	48.52	51.70
5	66.37	67.71	67.04
6	38.92	23.06	30.99
7	24.13	41.76	32.94
8	30.27	34.51	32.39
9	26.48	41.86	34.17
10	38.59	40.49	39.54
11	59.88	74.74	67.31
12	46.55	37.25	41.90
13	35.53	29.09	32.31
14	44.68	41.06	42.87
15	74.33	81.71	78.02
16	52.67	49.17	50.92
17	53.43	63.21	58.32
18	35.95	39.66	37.80
19	38.14	42.35	40.24
20	54.94	70.35	62.65
21	50.42	56.71	53.56
22	54.08	56.86	55.47
23	66.81	74.47	70.64
24	55.52	52.52	54.02
25	35.36	41.59	38.48
26	25.61	33.82	29.72
27	18.66	26.50	22.58
TOTAL	44.14	47.90	46.02

KANSAS CITY MASS NOX

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	5.89	4.95	6.30	5.71
2	6.41	5.66	5.98	6.02
3	6.60	5.81	5.95	6.12
4	7.21	5.83	6.61	6.55
5	5.31	4.44	5.39	5.05
6	6.58	5.35	7.01	6.31
7	6.32	5.31	5.89	5.84
8	7.34	6.31	6.58	6.75
9	6.70	5.83	7.33	6.62
10	7.53	6.48	7.16	7.06
11	4.88	4.78	4.33	4.66
12	4.53	3.79	3.90	4.07
13	4.91	4.45	5.07	4.81
14	6.39	5.53	6.04	5.99
15	4.92	3.47	4.25	4.21
16	6.28	6.25	6.91	6.48
17	4.95	4.41	3.63	4.33
18	6.02	5.40	5.77	5.73
19	6.16	5.75	5.57	5.83
20	5.53	5.73	5.94	5.73
21	5.11	4.48	4.59	4.73
22	5.94	4.72	5.01	5.23
23	5.40	4.42	5.84	5.22
24	6.03	5.26	6.94	6.07
25	7.38	6.70	5.99	6.69
26	3.34	2.96	2.54	2.94
27	3.85	2.98	3.86	3.56
TOTAL	5.83	5.08	5.57	5.49

HOUSTON MASS NOX 24C<

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	4.38	4.41	3.87	4.22
2	4.91	5.56	4.80	5.09
3	5.43	5.14	4.78	5.12
4	5.35	6.38	4.25	5.33
5	3.72	3.91	3.89	3.84
6	6.71	6.47	5.20	6.13
7	4.78	3.56	2.93	3.76
8	6.74	6.83	5.49	6.35
9	5.38	5.60	4.53	5.17
10	4.66	5.37	4.41	4.81
11	4.94	3.88	2.65	3.82
12	4.45	4.29	4.10	4.28
13	4.10	4.57	3.72	4.13
14	5.15	5.59	4.71	5.15
15	2.54	2.86	2.89	2.76
16	6.47	5.88	5.06	5.80
17	3.94	3.83	2.52	3.43
18	5.65	6.67	4.86	5.73
19	5.52	5.59	4.55	5.22
20	4.84	5.12	4.27	4.74
21	4.14	3.74	3.33	3.74
22	4.84	4.90	3.44	4.39
23	3.88	4.01	3.20	3.70
24	4.84	5.52	4.54	4.97
25	5.82	6.45	4.32	5.53
26	2.74	2.59	1.87	2.40
27	2.19	2.77	2.52	2.49
TOTAL	4.74	4.87	3.95	4.52

MASS NOX

247<

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	5.14	4.68	5.08	4.97
2	5.66	5.61	5.39	5.55
3	6.01	5.48	5.36	5.62
4	6.28	6.10	5.43	5.94
5	4.52	4.18	4.64	4.45
6	6.64	5.91	6.10	6.22
7	5.55	4.43	4.41	4.80
8	7.04	6.57	6.04	6.55
9	6.04	5.72	5.93	5.90
10	6.09	5.93	5.79	5.94
11	4.91	4.33	3.49	4.24
12	4.49	4.04	4.00	4.18
13	4.51	4.51	4.39	4.47
14	5.77	5.56	5.37	5.57
15	3.73	3.16	3.57	3.49
16	6.37	6.07	5.98	6.14
17	4.44	4.12	3.07	3.88
18	5.84	6.03	5.31	5.73
19	5.84	5.67	5.06	5.52
20	5.19	5.43	5.10	5.24
21	4.62	4.11	3.96	4.23
22	5.39	4.81	4.23	4.81
23	4.64	4.22	4.52	4.46
24	5.44	5.39	5.74	5.52
25	6.60	6.57	5.16	6.11
26	3.04	2.77	2.21	2.67
27	3.02	2.87	3.19	3.03
TOTAL	5.29	4.97	4.76	5.01
CITY-				
1	5.83	5.08	5.57	5.49
2	4.74	4.87	3.95	4.52
TOTAL	5.29	4.97	4.76	5.01

MASS NOX 348<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	5.71	4.22	4.97
2	6.02	5.09	5.55
3	6.12	5.12	5.62
4	6.55	5.33	5.94
5	5.05	3.84	4.45
6	6.31	6.13	6.22
7	5.84	3.76	4.80
8	6.75	6.35	6.55
9	6.62	5.17	5.90
10	7.06	4.81	5.94
11	4.66	3.82	4.24
12	4.07	4.28	4.18
13	4.81	4.13	4.47
14	5.99	5.15	5.57
15	4.21	2.76	3.49
16	6.48	5.80	6.14
17	4.33	3.43	3.88
18	5.73	5.73	5.73
19	5.83	5.22	5.52
20	5.73	4.74	5.24
21	4.73	3.74	4.23
22	5.23	4.39	4.81
23	5.22	3.70	4.46
24	6.07	4.97	5.52
25	6.69	5.53	6.11
26	2.94	2.40	2.67
27	3.56	2.49	3.03
TOTAL	5.49	4.52	5.01

KANSAS CITY MASS NOXC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	4.96	4.78	6.06	5.26
2	5.49	5.54	5.16	5.40
3	5.67	5.90	5.36	5.64
4	6.15	5.99	5.78	5.97
5	4.50	4.59	4.95	4.68
6	5.55	5.17	6.19	5.64
7	5.27	5.48	5.33	5.36
8	6.41	6.52	5.71	6.21
9	5.63	6.02	6.43	6.03
10	6.57	6.55	6.28	6.47
11	4.15	4.75	4.47	4.46
12	3.81	3.53	3.36	3.57
13	4.19	4.51	4.34	4.35
14	5.56	5.85	5.19	5.53
15	4.22	3.48	3.63	3.78
16	5.41	6.31	6.02	5.91
17	4.20	4.48	3.09	3.92
18	5.15	5.17	5.31	5.21
19	5.38	5.51	5.17	5.35
20	4.71	5.55	5.50	5.25
21	4.43	4.38	4.23	4.35
22	5.06	4.77	5.14	4.99
23	4.64	4.39	5.58	4.87
24	5.12	5.26	6.04	5.47
25	6.24	6.53	5.77	6.18
26	2.91	2.89	2.32	2.71
27	3.29	2.83	3.59	3.23
TOTAL	4.99	5.06	5.04	5.03

HOUSTON MASS NOXC 350<

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	4.74	4.33	4.49	4.52
2	5.22	5.47	5.60	5.43
3	5.69	5.26	5.40	5.45
4	5.73	6.11	5.04	5.63
5	3.90	3.89	4.72	4.17
6	7.55	6.47	6.18	6.74
7	4.94	3.44	3.32	3.90
8	7.37	6.90	6.29	6.85
9	5.70	5.56	5.45	5.57
10	4.96	5.25	5.16	5.12
11	5.33	3.81	3.16	4.10
12	4.88	4.20	4.77	4.62
13	4.42	4.44	4.46	4.44
14	5.39	5.34	5.40	5.38
15	2.65	2.89	3.31	2.95
16	6.94	5.95	5.65	6.18
17	4.48	3.95	2.82	3.75
18	5.85	6.72	5.77	6.11
19	5.64	5.49	5.09	5.41
20	5.54	5.02	4.88	5.15
21	4.34	3.77	3.77	3.96
22	5.10	4.93	3.83	4.62
23	4.33	3.87	3.79	3.99
24	5.10	5.36	5.26	5.24
25	6.36	6.51	5.06	5.98
26	2.92	2.67	2.10	2.57
27	2.30	2.74	2.92	2.65
TOTAL	5.09	4.83	4.58	4.83

MASS NOXC

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	4.85	4.55	5.27	4.89
2	5.35	5.50	5.38	5.41
3	5.68	5.58	5.38	5.55
4	5.94	6.05	5.41	5.80
5	4.20	4.24	4.83	4.42
6	6.55	5.82	6.18	6.19
7	5.11	4.46	4.32	4.63
8	6.89	6.71	6.00	6.53
9	5.67	5.79	5.94	5.80
10	5.77	5.90	5.72	5.80
11	4.74	4.28	3.81	4.28
12	4.34	3.86	4.07	4.09
13	4.31	4.48	4.40	4.40
14	5.48	5.60	5.29	5.46
15	3.44	3.18	3.47	3.36
16	6.18	6.13	5.84	6.05
17	4.34	4.21	2.96	3.84
18	5.50	5.95	5.54	5.66
19	5.51	5.50	5.13	5.38
20	5.12	5.28	5.19	5.20
21	4.39	4.07	4.00	4.16
22	5.08	4.85	4.49	4.81
23	4.48	4.13	4.68	4.43
24	5.11	5.31	5.65	5.36
25	6.30	6.52	5.42	6.08
26	2.92	2.78	2.21	2.64
27	2.79	2.78	3.25	2.94
TOTAL	5.04	4.95	4.81	4.93
CITY-				
1	4.99	5.06	5.04	5.03
2	5.09	4.83	4.58	4.83
TOTAL	5.04	4.95	4.81	4.93

MASS NOXC

252<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	5.26	4.52	4.89
2	5.40	5.43	5.41
3	5.64	5.45	5.55
4	5.97	5.63	5.80
5	4.68	4.17	4.42
6	5.64	6.74	6.19
7	5.36	3.90	4.63
8	6.21	6.85	6.53
9	6.03	5.57	5.80
10	6.47	5.12	5.80
11	4.46	4.10	4.28
12	3.57	4.62	4.09
13	4.35	4.44	4.40
14	5.53	5.38	5.46
15	3.78	2.95	3.36
16	5.91	6.18	6.05
17	3.92	3.75	3.84
18	5.21	6.11	5.66
19	5.35	5.41	5.38
20	5.25	5.15	5.20
21	4.35	3.96	4.16
22	4.99	4.62	4.81
23	4.87	3.99	4.43
24	5.47	5.24	5.36
25	6.18	5.98	6.08
26	2.71	2.57	2.64
27	3.23	2.65	2.94
TOTAL	5.03	4.83	4.93

E-2.2

LOG TRANSFORMED MEANS TABLES

TABLE E-7

Cycles 6-7

Kansas City

Houston

Combined Cities

Combined Phases

HC
CO
NO
NOC

KANSAS CITY CYCLE 6-7 HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	287.38	310.09	325.80	307.35
2	219.82	247.15	220.43	228.79
3	231.51	284.43	267.66	260.24
4	289.70	262.34	254.47	268.42
5	252.53	326.89	330.07	300.91
6	234.45	248.04	233.16	238.46
7	226.54	251.46	241.13	239.49
8	311.75	344.34	361.35	338.51
9	243.24	291.50	275.58	269.34
10	254.94	241.21	225.54	240.26
11	235.12	229.95	266.46	243.32
12	236.47	246.66	261.68	248.06
13	193.22	181.47	159.93	177.66
14	325.31	399.80	353.49	358.24
15	316.02	368.05	332.01	338.01
16	272.54	292.23	248.43	270.47
17	255.18	263.63	253.31	257.33
18	225.69	217.35	193.82	211.85
19	211.81	221.32	199.80	210.79
20	255.57	285.34	285.16	274.99
21	194.60	227.51	229.69	216.65
22	180.62	234.72	221.42	210.95
23	209.24	307.46	262.92	256.70
24	228.65	242.39	228.65	233.14
25	151.62	161.77	160.40	157.86
26	270.44	430.83	427.65	367.98
27	237.54	255.46	297.30	267.27
TOTAL	239.22	266.77	256.88	254.03

HOUSTON CYCLE 6-7 HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	295.99	271.61	290.27	285.77
2	223.86	264.54	243.71	243.47
3	337.60	288.85	269.84	297.44
4	277.99	230.42	296.27	266.73
5	275.69	273.00	233.93	260.15
6	263.95	258.19	289.68	270.27
7	253.35	279.99	294.08	275.28
8	344.96	408.76	284.26	342.23
9	299.54	285.75	310.20	298.33
10	244.84	216.76	246.15	235.51
11	273.48	234.25	303.66	268.95
12	216.61	248.13	241.53	235.02
13	178.00	165.51	190.06	177.58
14	322.55	378.99	408.44	368.23
15	442.69	404.92	346.82	396.15
16	292.90	283.15	277.65	284.50
17	387.47	305.46	453.62	377.25
18	260.30	231.67	234.34	241.77
19	230.64	227.38	202.65	219.86
20	329.27	306.43	341.60	325.44
21	243.24	276.43	270.76	263.07
22	231.43	168.63	229.63	207.71
23	247.25	241.43	224.54	237.55
24	221.94	220.22	217.80	219.98
25	144.58	136.90	128.62	136.54
26	477.17	549.84	686.35	564.70
27	302.44	327.19	400.40	340.91
TOTAL	273.55	266.14	278.86	272.80

CYCLE 6-7 HC

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	291.65	290.21	307.53	296.36
	2	221.83	255.70	231.78	236.01
	3	279.57	286.63	268.75	278.22
	4	283.79	245.86	274.58	267.58
	5	263.86	298.73	277.87	279.79
	6	248.77	253.07	259.89	253.87
	7	239.57	265.34	266.29	256.76
	8	327.94	375.17	320.49	340.37
	9	269.92	288.61	292.38	283.46
	10	249.84	228.66	235.62	237.88
	11	253.58	232.09	284.45	255.81
	12	226.32	247.39	251.41	241.45
	13	185.46	173.31	174.35	177.62
	14	323.93	389.26	379.97	363.20
	15	374.03	386.05	339.33	365.92
	16	282.54	287.65	262.63	277.39
	17	314.44	283.77	338.98	311.57
	18	242.38	224.40	213.12	226.31
	19	221.02	224.33	201.22	215.28
	20	290.09	295.70	312.11	299.15
	21	217.56	250.78	249.38	238.73
	22	204.45	198.95	225.49	209.33
	23	227.46	272.45	242.97	246.94
	24	225.27	231.04	223.16	226.47
	25	148.06	148.81	143.63	146.82
	26	359.23	486.71	541.77	455.85
	27	268.04	289.11	345.02	299.02
	TOTAL	255.81	266.45	267.65	263.25
CITY-					
	1	239.22	266.77	256.88	254.03
	2	273.55	266.14	278.86	272.80
	TOTAL	255.81	266.45	267.65	263.25

CYCLE 6-7 HC

253<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	307.35	285.77	296.36
2	228.79	243.47	236.01
3	260.24	297.44	278.22
4	268.42	266.73	267.58
5	300.91	260.15	279.79
6	238.46	270.27	253.87
7	239.49	275.28	256.76
8	338.51	342.23	340.37
9	269.34	298.33	283.46
10	240.26	235.51	237.88
11	243.32	268.95	255.81
12	248.06	235.02	241.45
13	177.66	177.58	177.62
14	358.24	368.23	363.20
15	338.01	396.15	365.92
16	270.47	284.50	277.39
17	257.33	377.25	311.57
18	211.85	241.77	226.31
19	210.79	219.86	215.28
20	274.99	325.44	299.15
21	216.65	263.07	238.73
22	210.95	207.71	209.33
23	256.70	237.55	246.94
24	233.14	219.98	226.47
25	157.86	136.54	146.82
26	367.98	564.70	455.85
27	262.27	340.91	299.02
TOTAL	254.03	272.80	263.25

KANSAS CITY CYCLE 6-7 CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.26	1.50	1.25	1.33
2	1.03	1.06	1.02	1.04
3	1.20	1.69	1.53	1.46
4	1.55	1.75	1.78	1.69
5	1.74	2.29	2.15	2.04
6	1.18	1.57	1.07	1.26
7	0.74	0.89	0.98	0.86
8	1.04	1.08	0.92	1.01
9	0.81	0.82	0.94	0.85
10	1.00	1.06	1.22	1.09
11	1.76	1.74	1.92	1.80
12	1.24	1.41	1.66	1.43
13	1.36	0.88	0.74	0.96
14	1.38	1.54	1.69	1.53
15	2.13	2.60	2.19	2.30
16	1.60	1.52	1.36	1.49
17	1.49	1.63	1.96	1.68
18	1.13	1.18	1.10	1.14
19	1.20	1.24	0.99	1.14
20	1.61	1.53	1.27	1.46
21	1.45	1.80	1.55	1.59
22	1.02	1.82	1.29	1.34
23	1.92	2.53	1.84	2.07
24	1.67	1.83	1.46	1.65
25	1.01	0.94	1.22	1.05
26	1.66	1.91	1.85	1.80
27	0.86	1.11	0.82	0.92
TOTAL	1.29	1.44	1.34	1.36

HOUSTON CYCLE 6-7 CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.31	1.51	1.35	1.39
2	1.17	1.69	1.50	1.44
3	0.91	1.39	1.52	1.24
4	1.59	1.07	1.56	1.38
5	2.18	2.12	1.36	1.85
6	0.76	0.76	0.91	0.81
7	0.89	2.10	2.07	1.57
8	0.91	1.29	1.44	1.19
9	1.29	1.08	1.60	1.31
10	1.17	1.21	1.43	1.26
11	2.14	1.81	2.31	2.08
12	0.90	0.98	0.85	0.91
13	0.61	0.56	0.94	0.68
14	1.37	1.37	1.45	1.40
15	3.07	2.76	2.13	2.62
16	1.35	1.34	1.65	1.44
17	2.02	1.77	2.00	1.93
18	1.20	1.05	1.30	1.18
19	1.10	1.31	1.37	1.26
20	1.89	1.92	2.74	2.15
21	1.62	2.02	1.87	1.83
22	1.61	1.10	1.68	1.44
23	2.38	2.28	2.69	2.45
24	1.42	1.42	1.53	1.46
25	0.86	0.88	1.45	1.03
26	2.08	2.14	2.66	2.28
27	1.18	1.47	1.22	1.28
TOTAL	1.34	1.41	1.58	1.44

CYCLE 6-7 CC

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	1.29	1.50	1.30	1.36
2	1.10	1.34	1.24	1.22
3	1.04	1.53	1.53	1.35
4	1.57	1.37	1.66	1.53
5	1.95	2.20	1.71	1.94
6	0.95	1.09	0.99	1.01
7	0.81	1.37	1.42	1.16
8	0.97	1.18	1.15	1.10
9	1.02	0.94	1.23	1.06
10	1.08	1.13	1.32	1.17
11	1.94	1.78	2.11	1.94
12	1.05	1.17	1.19	1.14
13	0.91	0.70	0.83	0.81
14	1.37	1.45	1.57	1.46
15	2.56	2.68	2.16	2.45
16	1.47	1.43	1.50	1.46
17	1.74	1.70	1.98	1.80
18	1.17	1.11	1.20	1.16
19	1.15	1.28	1.17	1.20
20	1.75	1.71	1.86	1.77
21	1.53	1.90	1.70	1.71
22	1.29	1.42	1.47	1.39
23	2.14	2.40	2.23	2.25
24	1.54	1.61	1.50	1.55
25	0.93	0.91	1.33	1.04
26	1.86	2.02	2.22	2.03
27	1.01	1.28	1.00	1.09
TOTAL	1.32	1.43	1.45	1.40
CITY-				
1	1.29	1.44	1.34	1.36
2	1.34	1.41	1.58	1.44
TOTAL	1.32	1.43	1.45	1.40

CYCLE 6-7 CO 302<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1.33	1.39	1.36
2	1.04	1.44	1.22
3	1.46	1.24	1.35
4	1.69	1.38	1.53
5	2.04	1.85	1.94
6	1.26	0.81	1.01
7	0.86	1.57	1.16
8	1.01	1.19	1.10
9	0.85	1.31	1.06
10	1.09	1.26	1.17
11	1.80	2.08	1.94
12	1.43	0.91	1.14
13	0.96	0.68	0.81
14	1.53	1.40	1.46
15	2.30	2.62	2.45
16	1.49	1.44	1.46
17	1.68	1.93	1.80
18	1.14	1.18	1.16
19	1.14	1.26	1.20
20	1.46	2.15	1.77
21	1.59	1.83	1.71
22	1.34	1.44	1.39
23	2.07	2.45	2.25
24	1.65	1.46	1.55
25	1.05	1.03	1.04
26	1.80	2.28	2.03
27	0.92	1.28	1.09
TOTAL	1.36	1.44	1.40

KANSAS CITY CYCLE 6-7 NO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1809.32	1416.11	1998.11	1723.50
2	2189.24	1854.05	2079.75	2036.14
3	1895.67	1633.68	1717.70	1745.66
4	1802.87	1453.82	1588.63	1608.79
5	1217.10	1058.96	1246.49	1171.20
6	1921.47	1252.67	2054.03	1703.56
7	2121.40	1725.53	1810.81	1878.48
8	2019.17	1714.02	1697.99	1804.57
9	1843.39	1704.22	2105.77	1877.23
10	1900.24	1626.43	1849.31	1787.94
11	1135.29	1106.57	980.25	1071.87
12	1350.48	1151.40	1185.33	1226.08
13	1430.42	1297.09	1454.49	1392.24
14	1737.31	1482.00	1657.44	1622.01
15	1242.77	798.51	795.62	924.25
16	1597.60	1703.98	1900.39	1729.52
17	1299.52	1142.35	860.86	1085.19
18	1662.44	1512.01	1603.08	1591.30
19	1629.18	1517.16	1346.46	1493.01
20	1398.63	1513.03	1506.68	1471.83
21	1374.44	1228.76	1225.01	1274.22
22	1564.48	968.77	1050.13	1167.55
23	1362.77	1069.66	1375.91	1261.10
24	1455.42	1259.37	1742.43	1472.65
25	1696.35	1446.30	1381.13	1502.00
26	1589.52	1419.32	1226.16	1403.76
27	1359.92	1063.12	1346.09	1248.50
TOTAL	1590.54	1347.37	1463.04	1463.62

HOUSTON CYCLE 6-7 NO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1382.70	1488.19	1286.75	1383.44
2	1344.85	1631.10	1482.63	1481.59
3	1402.87	1399.66	1278.14	1358.95
4	1355.50	1643.50	1140.05	1364.37
5	882.67	829.32	966.97	891.21
6	2072.76	1988.69	1562.72	1860.65
7	1645.64	1111.54	778.07	1124.84
8	1859.55	1927.62	1377.92	1703.01
9	1494.41	1500.33	1161.95	1379.99
10	1159.25	1370.75	1111.77	1208.88
11	1182.37	900.15	602.50	862.33
12	1295.49	1236.67	1161.96	1230.15
13	1166.16	1387.18	1030.64	1185.77
14	1414.99	1630.88	1365.75	1466.16
15	670.27	615.38	846.01	704.03
16	1758.06	1618.08	1390.65	1581.56
17	991.77	849.30	647.52	817.04
18	1576.35	1913.19	1331.52	1589.47
19	1447.79	1444.24	1129.21	1331.60
20	1157.55	1183.37	829.79	1043.62
21	1088.82	1005.18	888.54	990.74
22	1199.32	1177.59	694.85	993.74
23	988.58	1095.47	836.28	967.51
24	1235.47	1451.73	1091.27	1250.88
25	1369.54	1609.12	978.53	1291.95
26	1224.97	1164.04	668.40	984.11
27	795.90	986.18	931.16	900.77
TOTAL	1264.92	1290.70	1023.44	1186.63

CYCLE 6-7 NO 365<

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	1581.69	1451.70	1603.45	1544.13
2	1715.87	1739.00	1755.99	1736.87
3	1630.76	1512.15	1481.71	1540.21
4	1563.27	1545.75	1345.77	1481.54
5	1036.48	937.13	1097.87	1021.66
6	1995.68	1578.34	1791.61	1780.37
7	1868.43	1384.92	1186.98	1453.60
8	1937.72	1817.69	1529.60	1753.05
9	1659.75	1599.03	1564.22	1607.18
10	1484.20	1493.13	1433.88	1470.16
11	1158.59	998.04	768.51	961.41
12	1322.70	1193.27	1173.59	1228.11
13	1291.55	1341.38	1224.36	1284.86
14	1567.89	1554.66	1504.54	1542.12
15	912.69	700.99	820.43	806.66
16	1675.91	1660.47	1625.66	1653.87
17	1135.27	984.98	746.61	941.61
18	1618.82	1700.81	1461.00	1590.38
19	1535.81	1480.25	1233.06	1409.99
20	1272.40	1338.08	1118.14	1239.37
21	1223.32	1111.36	1043.30	1123.57
22	1369.78	1068.08	854.21	1077.14
23	1160.69	1082.49	1072.68	1104.59
24	1340.94	1352.14	1378.94	1357.24
25	1524.21	1525.54	1162.53	1393.02
26	1395.39	1285.36	905.30	1175.35
27	1040.37	1023.93	1119.56	1060.47
TOTAL	1418.43	1318.73	1223.66	1317.87
CITY-				
1	1590.54	1347.37	1463.04	1463.62
2	1264.92	1290.70	1023.44	1186.63
TOTAL	1418.42	1318.73	1223.65	1317.87

CYCLE 6-7 NO 366<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1723.50	1383.44	1544.13
2	2036.14	1481.59	1736.87
3	1745.66	1358.95	1540.21
4	1608.79	1364.37	1481.54
5	1171.20	891.21	1021.66
6	1703.56	1860.65	1780.37
7	1878.48	1124.84	1453.60
8	1804.57	1703.01	1753.05
9	1877.23	1375.99	1607.18
10	1787.94	1208.88	1470.16
11	1071.87	862.33	961.41
12	1226.08	1230.15	1228.11
13	1392.24	1185.77	1284.86
14	1622.01	1466.16	1542.12
15	924.25	704.03	806.66
16	1729.52	1581.56	1653.87
17	1085.19	817.04	941.61
18	1591.30	1589.47	1590.38
19	1493.01	1331.60	1409.99
20	1471.83	1043.62	1239.37
21	1274.22	990.74	1123.57
22	1167.55	993.74	1077.14
23	1261.10	967.51	1104.59
24	1472.65	1250.88	1357.24
25	1502.00	1291.95	1393.02
26	1403.78	984.11	1175.35
27	1248.50	900.77	1060.47
TOTAL	1463.63	1186.64	1317.88

KANSAS CITY CYCLE 6-7 NOC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1528.61	1379.37	1874.96	1981.21
2	1877.12	1843.98	1808.57	1843.01
3	1632.63	1672.54	1528.90	1619.06
4	1538.64	1494.46	1980.73	1469.79
5	1028.66	1088.32	1120.87	1079.34
6	1624.14	1265.61	1814.39	1529.66
7	1770.18	1751.08	1648.47	1727.60
8	1767.57	1765.53	1671.09	1661.09
9	1553.47	1740.29	1849.27	1709.07
10	1654.44	1648.34	1811.69	1659.05
11	969.87	1107.21	1013.93	1028.77
12	1140.48	1074.36	1031.58	1081.22
13	1227.38	1330.45	1249.82	1266.47
14	1514.00	1555.01	1425.97	1497.21
15	1067.69	793.02	894.79	837.90
16	1374.70	1714.56	1656.13	1574.53
17	1109.08	1162.09	940.10	980.38
18	1423.23	1460.29	1436.66	1447.08
19	1425.23	1455.08	1252.73	1374.90
20	1195.88	1459.01	1364.93	1339.43
21	1193.88	1261.36	1132.84	1179.62
22	1338.73	980.28	1098.29	1121.89
23	1174.67	1045.40	1295.93	1167.33
24	1237.78	1274.92	1523.47	1339.60
25	1434.79	1417.34	1312.94	1387.22
26	1393.32	1398.37	1119.10	1290.19
27	1164.73	1084.39	1218.29	1129.48
TOTAL	1362.67	1348.57	1319.39	1340.21

HOUSTON CYCLE 6-7 NCC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1509.91	1452.66	1491.86	1484.61
2	1418.24	1626.53	1700.56	1577.13
3	1489.39	1421.36	1445.78	1451.90
4	1463.62	1579.35	1356.72	1463.75
5	934.79	821.60	1168.64	964.61
6	2317.57	1983.67	1849.27	2040.96
7	1706.68	1073.88	905.19	1187.81
8	2036.07	1949.32	1615.82	1857.90
9	1598.49	1475.61	1386.79	1484.45
10	1243.10	1337.40	1295.29	1291.35
11	1277.13	886.10	710.24	929.77
12	1430.78	1213.08	1376.35	1336.79
13	1274.74	1342.23	1243.69	1286.23
14	1489.61	1582.40	1557.79	1536.24
15	715.61	819.97	973.47	799.89
16	1898.10	1443.81	1550.84	1691.39
17	1140.04	857.91	728.07	892.99
18	1638.97	1945.94	1576.32	1713.10
19	1493.15	1431.55	1254.36	1389.24
20	1320.70	1167.26	956.82	1139.33
21	1159.99	1025.95	1010.10	1063.28
22	1278.56	1184.92	785.96	1060.51
23	1091.98	1050.66	988.02	1047.67
24	1310.75	1415.21	1263.68	1329.39
25	1498.80	1430.56	1148.74	1419.70
26	1323.23	1210.95	761.65	1068.66
27	831.06	972.43	1091.35	959.00
TOTAL	1362.99	1280.64	1188.24	1275.19

CYCLE 6-7 NOC

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	1519.23	1415.54	1672.47	1532.15
2	1631.63	1731.84	1753.74	1704.89
3	1559.36	1541.84	1486.56	1528.93
4	1500.66	1536.32	1368.68	1466.75
5	980.60	945.60	1144.10	1018.89
6	1940.12	1546.46	1832.75	1765.05
7	1738.14	1371.30	1221.55	1427.93
8	1897.07	1855.15	1541.74	1757.21
9	1575.82	1602.50	1598.82	1592.33
10	1434.10	1484.75	1444.83	1454.40
11	1112.95	990.51	848.61	978.01
12	1277.41	1141.61	1191.56	1202.23
13	1250.84	1336.33	1243.75	1276.29
14	1501.76	1558.70	1490.21	1516.59
15	874.10	701.17	822.41	795.84
16	1615.33	1678.81	1602.62	1631.91
17	1124.45	998.48	734.06	937.57
18	1527.29	1685.71	1505.03	1579.66
19	1458.79	1443.26	1253.54	1381.95
20	1256.74	1305.00	1142.80	1232.94
21	1176.81	1110.19	1069.71	1118.04
22	1309.30	1067.60	929.09	1090.75
23	1132.57	1048.02	1131.29	1103.23
24	1273.74	1343.23	1387.51	1333.99
25	1466.44	1520.21	1228.00	1398.91
26	1357.82	1301.29	921.58	1176.48
27	913.85	989.26	1152.08	1038.90
TOTAL	1362.61	1310.27	1252.10	1307.54
CITY-				
1	1362.67	1340.57	1319.39	1340.76
2	1362.55	1280.64	1188.24	1279.15
TOTAL	1362.61	1310.26	1252.09	1307.54

CYCLE 6-7 NOC 370<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1581.21	1484.61	1532.15
2	1843.01	1577.13	1704.89
3	1610.06	1451.90	1528.93
4	1469.75	1463.75	1466.75
5	1078.34	964.61	1019.89
6	1526.44	2040.96	1765.05
7	1722.40	1183.81	1427.93
8	1661.98	1857.90	1757.21
9	1708.07	1484.45	1592.33
10	1638.03	1291.35	1454.40
11	1028.77	929.77	978.01
12	1081.22	1336.79	1202.23
13	1266.42	1286.23	1276.29
14	1497.21	1536.24	1516.59
15	837.90	755.89	795.84
16	1574.53	1691.39	1631.91
17	984.38	892.99	937.57
18	1440.08	1713.10	1570.66
19	1374.70	1389.24	1381.95
20	1335.42	1138.33	1232.96
21	1175.62	1063.28	1118.04
22	1121.85	1060.51	1090.75
23	1167.33	1042.67	1103.23
24	1339.64	1328.39	1333.99
25	1387.22	1410.70	1398.91
26	1295.18	1068.66	1176.48
27	1129.48	959.00	1038.90
TOTAL	1360.77	1279.16	1307.55

TABLE E-8

Composite

Kansas City

Houston

Combined Cities

Combined Phases

HC
CO
NO
NOC

KANSAS CITY COMPOSITE HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	323.07	340.40	362.85	341.72
2	263.16	285.40	270.81	272.97
3	264.64	322.12	307.08	296.92
4	316.63	314.00	295.92	308.71
5	278.28	364.78	371.91	335.47
6	255.93	272.14	256.87	261.54
7	249.92	301.44	267.46	272.12
8	336.64	376.69	394.97	368.62
9	271.39	323.37	312.03	301.41
10	282.93	272.54	257.60	270.83
11	280.22	248.88	297.97	274.93
12	272.73	297.02	323.60	297.06
13	226.69	214.55	194.47	211.48
14	354.89	428.60	379.28	386.40
15	349.58	401.67	368.46	372.62
16	301.50	315.07	281.37	298.99
17	279.17	289.06	284.78	284.31
18	247.50	244.56	216.20	235.65
19	233.99	234.21	217.87	228.56
20	279.30	302.22	306.61	295.80
21	233.20	263.12	263.76	252.95
22	206.80	251.93	233.82	230.09
23	234.03	319.99	280.15	275.80
24	249.82	251.94	252.24	251.33
25	174.82	177.45	178.28	176.85
26	309.97	488.69	446.61	407.47
27	262.04	280.52	326.70	289.51
TOTAL	268.56	296.31	287.82	284.99

HOUSTON COMPOSITE HC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	323.02	318.53	325.48	322.33
2	274.93	331.82	317.06	306.97
3	360.19	317.03	296.20	323.40
4	314.55	268.77	320.35	300.30
5	319.29	309.29	260.96	295.38
6	288.63	282.63	305.93	292.23
7	272.41	319.34	327.34	305.37
8	368.09	440.27	292.01	361.71
9	332.13	327.40	326.44	328.65
10	277.63	263.91	261.93	267.73
11	303.77	261.29	358.22	305.22
12	254.21	288.23	278.68	273.33
13	200.33	199.39	218.79	205.98
14	348.44	406.28	436.32	395.29
15	473.86	450.63	374.50	430.83
16	317.60	305.72	296.90	306.62
17	408.54	323.69	457.70	392.63
18	278.75	254.10	257.82	263.34
19	248.46	246.00	218.16	237.13
20	344.83	319.54	348.94	337.51
21	277.39	308.78	301.33	295.52
22	247.23	191.70	244.86	226.40
23	270.49	272.55	245.86	267.68
24	243.15	251.62	239.58	244.73
25	165.74	178.90	156.24	166.70
26	506.55	568.05	730.74	994.64
27	328.80	379.49	454.13	384.09
TOTAL	301.14	300.72	304.58	302.80

COMPOSITE HC

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	323.05	329.28	343.66	331.89
	2	268.98	307.74	293.03	289.47
	3	308.74	319.56	301.59	309.88
	4	315.59	290.50	307.89	304.48
	5	298.08	335.89	311.54	314.78
	6	271.79	277.33	280.33	276.46
	7	260.92	310.26	295.89	288.26
	8	352.02	407.24	339.61	365.15
	9	300.22	325.38	319.15	314.73
	10	280.27	268.19	259.76	269.27
	11	291.76	255.01	326.71	289.68
	12	261.30	292.60	300.30	284.95
	13	213.10	206.83	206.27	208.71
	14	351.65	417.29	406.80	390.82
	15	407.00	425.45	371.47	400.67
	16	309.45	310.36	289.03	302.78
	17	337.71	305.88	361.03	334.11
	18	262.66	249.28	236.09	249.11
	19	241.12	240.03	218.01	237.80
	20	310.34	310.76	327.09	319.97
	21	294.31	285.04	281.92	273.41
	22	220.11	219.76	239.28	229.24
	23	251.60	295.32	262.44	269.16
	24	240.46	291.79	245.83	249.01
	25	170.22	178.18	186.90	171.70
	26	390.25	526.88	471.27	492.24
	27	291.93	326.27	385.18	332.89
	TOTAL	284.30	298.91	297.09	299.2
CITY-					
	1	280.56	294.31	287.82	283.9
	2	301.14	300.72	306.98	307.0
	TOTAL	284.30	298.91	297.09	299.2

COMPOSITE HC 375<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	341.72	322.33	331.89
2	272.97	306.97	289.47
3	296.92	323.40	309.88
4	308.71	300.30	304.48
5	335.47	295.38	314.78
6	261.54	292.23	276.46
7	272.12	305.37	288.26
8	368.62	361.71	365.15
9	301.41	328.65	314.73
10	270.83	267.73	269.27
11	274.93	305.22	289.68
12	297.06	273.33	284.95
13	211.48	205.98	208.71
14	386.40	395.29	390.82
15	372.67	430.83	400.67
16	298.99	306.62	302.78
17	284.31	392.63	334.11
18	235.65	263.34	249.11
19	228.56	237.13	232.80
20	295.80	337.51	315.97
21	252.95	295.52	273.41
22	230.09	226.40	228.24
23	275.80	262.68	269.16
24	251.33	244.73	248.01
25	176.85	166.70	171.70
26	407.47	594.64	492.24
27	288.51	384.09	332.89
TOTAL	283.99	302.90	293.25

KANSAS CITY COMPOSITE CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.50	1.62	1.42	1.51
2	1.58	1.44	1.60	1.54
3	1.55	2.01	2.02	1.85
4	1.80	1.91	2.00	1.90
5	2.15	2.61	2.43	2.39
6	1.42	1.74	1.32	1.48
7	0.99	1.07	1.20	1.08
8	1.26	1.21	1.17	1.21
9	1.09	1.02	1.20	1.10
10	1.25	1.24	1.55	1.34
11	2.15	1.89	2.14	2.06
12	1.69	2.05	2.23	1.98
13	1.84	1.35	1.25	1.46
14	1.65	1.75	2.05	1.81
15	2.60	2.89	2.56	2.68
16	2.08	2.07	1.97	2.04
17	1.85	1.94	2.27	2.01
18	1.50	1.49	1.34	1.44
19	1.62	1.48	1.23	1.43
20	2.25	1.96	1.80	1.99
21	1.93	2.17	1.89	2.00
22	1.62	2.02	1.45	1.68
23	2.47	2.80	2.11	2.44
24	2.16	1.99	1.97	2.04
25	1.25	1.05	1.44	1.24
26	1.86	2.11	2.03	1.99
27	0.93	1.19	0.89	0.99
TOTAL	1.65	1.71	1.66	1.68

HOUSTON COMPOSITE CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1.53	1.75	1.60	1.62
2	1.69	2.27	2.05	1.99
3	1.36	1.85	1.95	1.70
4	1.86	1.46	1.87	1.72
5	2.61	2.65	1.75	2.29
6	0.98	1.11	1.16	1.08
7	1.13	2.35	2.33	1.83
8	1.09	1.55	1.53	1.37
9	1.66	1.48	1.87	1.67
10	1.39	1.45	1.56	1.46
11	2.38	2.36	2.55	2.43
12	1.42	1.67	1.47	1.52
13	1.04	1.16	1.40	1.19
14	1.73	1.78	1.80	1.77
15	3.38	3.24	2.83	3.14
16	1.82	1.88	2.16	1.95
17	2.33	2.08	2.46	2.28
18	1.57	1.56	1.99	1.57
19	1.53	1.68	1.41	1.60
20	2.22	2.32	3.03	2.50
21	2.07	2.50	2.21	2.25
22	1.96	1.64	1.94	1.84
23	2.89	2.86	3.04	2.93
24	1.91	1.99	2.03	1.98
25	1.20	1.41	1.74	1.44
26	2.22	2.29	2.75	2.41
27	1.30	1.41	1.34	1.41
TOTAL	1.70	1.86	1.92	1.83

COMPOSITE CC

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	1.52	1.69	1.50	1.57
2	1.64	1.81	1.81	1.75
3	1.46	1.93	1.99	1.77
4	1.83	1.67	1.94	1.81
5	2.37	2.63	2.06	2.34
6	1.18	1.39	1.24	1.27
7	1.06	1.59	1.67	1.41
8	1.17	1.37	1.34	1.29
9	1.35	1.23	1.50	1.35
10	1.32	1.34	1.55	1.40
11	2.26	2.12	2.34	2.24
12	1.55	1.85	1.82	1.73
13	1.38	1.25	1.32	1.32
14	1.69	1.77	1.92	1.79
15	2.96	3.06	2.69	2.90
16	1.95	1.97	2.06	1.99
17	2.08	2.01	2.36	2.14
18	1.54	1.53	1.46	1.51
19	1.57	1.57	1.41	1.52
20	2.23	2.13	2.34	2.23
21	2.00	2.33	2.05	2.12
22	1.78	1.82	1.68	1.76
23	2.67	2.83	2.53	2.68
24	2.03	1.99	2.00	2.01
25	1.23	1.22	1.59	1.33
26	2.03	2.20	2.36	2.19
27	1.10	1.38	1.09	1.18
TOTAL	1.68	1.78	1.79	1.75
CITY-				
1	1.65	1.71	1.66	1.68
2	1.70	1.86	1.92	1.83
TOTAL	1.69	1.78	1.79	1.75

COMPOSITE CO 379<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1.51	1.62	1.57
2	1.54	1.99	1.75
3	1.85	1.70	1.77
4	1.90	1.72	1.81
5	2.39	2.29	2.34
6	1.48	1.08	1.27
7	1.08	1.83	1.41
8	1.21	1.37	1.29
9	1.10	1.67	1.35
10	1.34	1.46	1.40
11	2.06	2.43	2.24
12	1.98	1.52	1.73
13	1.46	1.19	1.32
14	1.81	1.77	1.79
15	2.68	3.14	2.90
16	2.04	1.95	1.99
17	2.01	2.28	2.14
18	1.44	1.57	1.51
19	1.43	1.60	1.52
20	1.99	2.50	2.23
21	2.00	2.25	2.12
22	1.68	1.84	1.76
23	2.44	2.93	2.68
24	2.04	1.98	2.01
25	1.24	1.44	1.33
26	1.99	2.41	2.19
27	0.99	1.41	1.18
TOTAL	1.68	1.83	1.75

KANSAS CITY COMPOSITE NO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1730.23	1371.65	1894.41	1650.47
2	1986.76	1732.38	1872.95	1861.10
3	1726.99	1476.01	1463.87	1551.06
4	1700.66	1326.27	1472.57	1492.02
5	1108.37	939.73	1142.82	1059.79
6	1852.89	1211.21	1923.65	1629.29
7	2009.58	1629.46	1709.34	1775.52
8	1896.03	1608.59	1677.63	1723.17
9	1730.38	1562.24	1944.70	1738.79
10	1786.00	1556.37	1713.03	1682.36
11	1048.20	1057.04	963.16	1021.91
12	1243.25	1014.85	1078.17	1108.75
13	1298.32	1158.77	1324.66	1259.42
14	1660.33	1416.10	1548.94	1539.53
15	1148.32	755.67	742.45	869.68
16	1469.42	1503.88	1701.71	1556.28
17	1220.45	1057.71	812.47	1016.01
18	1524.67	1373.99	1484.72	1460.35
19	1469.34	1378.76	1322.10	1389.76
20	1260.31	1366.52	1342.29	1322.24
21	1297.37	1123.38	1134.37	1170.16
22	1375.86	893.57	1002.31	1077.10
23	1252.43	1004.90	1292.46	1176.04
24	1368.34	1198.50	1619.69	1384.91
25	1626.69	1436.88	1300.82	1448.71
26	1428.82	1434.09	1246.68	1429.68
27	1404.81	1088.36	1342.64	1270.91
TOTAL	1485.91	1299.06	1368.88	1368.14

[illegible]

HOUSTON COMPOSITE NC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1289.74	1379.23	1212.02	1299.61
2	1456.58	1429.54	1322.82	1401.77
3	1250.40	1267.36	1170.36	1229.63
4	1268.38	1504.44	1044.62	1299.52
5	780.56	740.47	877.88	797.30
6	1988.74	1844.36	1499.91	1769.34
7	1923.97	1052.10	720.72	1033.16
8	1752.82	1780.06	1350.21	1619.25
9	1332.00	1319.04	1069.93	1234.16
10	1089.20	1227.45	1020.36	1119.30
11	1108.81	788.29	535.87	774.10
12	1172.25	1129.53	1033.31	1119.13
13	1060.95	1226.73	935.17	1067.66
14	1341.98	1480.33	1272.51	1362.11
15	619.33	566.14	760.24	677.00
16	1589.22	1449.25	1256.69	1429.12
17	932.87	790.43	597.36	767.96
18	1432.15	1681.96	1234.99	1430.30
19	1289.96	1204.36	1019.53	1199.83
20	1070.65	1069.39	792.59	968.36
21	1005.13	911.36	824.29	913.59
22	1096.53	1070.69	666.75	925.89
23	891.99	959.81	775.91	873.36
24	1132.14	1206.44	1024.96	1142.87
25	1290.11	1423.33	961.25	1239.39
26	1241.39	1212.41	738.15	1021.47
27	790.85	973.59	955.81	981.81
TOTAL	1178.61	1174.31	954.14	1097.12

COMPOSITE NO

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	1493.83	1373.44	1515.27	1459.48
2	1701.14	1573.69	1574.03	1615.19
3	1469.50	1367.71	1308.91	1380.46
4	1468.70	1412.55	1240.27	1370.31
5	930.13	834.17	1001.62	919.39
6	1919.61	1494.62	1698.62	1695.43
7	1749.79	1309.34	1116.08	1367.44
8	1823.01	1692.15	1509.50	1669.88
9	1518.17	1435.50	1442.46	1464.90
10	1392.18	1382.16	1327.26	1366.90
11	1078.08	912.82	715.06	889.46
12	1207.23	1071.71	1055.50	1109.45
13	1173.65	1192.25	1112.96	1159.11
14	1492.47	1447.86	1403.94	1447.63
15	843.32	654.07	741.34	742.24
16	1528.15	1476.31	1464.09	1489.25
17	1067.01	914.36	696.77	879.27
18	1478.66	1520.18	1354.11	1449.23
19	1376.73	1330.56	1161.00	1285.99
20	1161.61	1208.69	1031.45	1131.37
21	1124.20	1011.82	966.95	1032.24
22	1228.28	981.69	817.50	995.21
23	1056.96	982.09	1001.42	1017.99
24	1244.65	1241.69	1288.44	1258.08
25	1448.66	1430.09	1106.53	1318.55
26	1421.97	1319.51	939.59	1209.04
27	1054.04	1029.35	1129.39	1070.09
TOTAL	1323.39	1215.96	1142.86	1225.17
CITY-				
1	1485.93	1259.06	1368.88	1368.16
2	1178.61	1174.31	954.14	1097.12
TOTAL	1323.38	1215.95	1142.85	1225.16

COMPOSITE NO

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1650.47	1290.61	1459.48
2	1861.10	1401.77	1615.19
3	1551.06	1228.63	1380.46
4	1492.02	1258.52	1370.31
5	1059.79	797.59	919.39
6	1628.29	1765.34	1695.43
7	1775.52	1053.16	1367.44
8	1723.17	1618.25	1669.88
9	1738.79	1234.16	1464.90
10	1682.36	1110.59	1366.90
11	1021.91	774.18	889.46
12	1108.75	1110.15	1109.45
13	1258.42	1067.66	1159.11
14	1538.53	1362.11	1447.63
15	863.68	637.88	742.24
16	1556.28	1425.12	1489.25
17	1016.01	760.94	879.27
18	1460.35	1438.20	1449.23
19	1388.76	1190.83	1285.99
20	1322.24	968.06	1131.37
21	1170.16	910.59	1032.24
22	1072.10	923.85	995.21
23	1176.06	872.54	1012.99
24	1384.91	1142.87	1258.08
25	1448.71	1200.09	1318.55
26	1428.68	1021.47	1208.04
27	1270.91	901.01	1070.09
TOTAL	1368.17	1097.13	1225.17

KANSAS CITY COMPOSITE NOC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1461.79	1336.06	1777.66	1514.21
2	1703.51	1722.97	1628.74	1684.57
3	1487.36	1511.12	1302.63	1430.58
4	1451.40	1363.34	1279.87	1363.08
5	936.75	965.79	1026.91	975.77
6	1566.18	1165.70	1701.10	1458.99
7	1676.88	1653.59	1556.10	1628.01
8	1659.77	1656.93	1453.42	1587.01
9	1458.24	1595.31	1702.28	1582.10
10	1554.97	1577.33	1492.88	1541.31
11	895.47	1057.65	996.25	980.81
12	1049.93	948.80	938.32	977.75
13	1114.03	1188.57	1132.80	1144.70
14	1446.92	1485.87	1332.25	1420.16
15	986.54	750.48	648.37	782.99
16	1264.40	1513.22	1486.46	1416.82
17	1041.59	1075.99	698.50	921.63
18	1306.99	1326.98	1330.87	1321.57
19	1285.42	1322.34	1230.06	1279.71
20	1077.61	1317.72	1216.01	1199.70
21	1092.19	1098.33	1049.02	1079.62
22	1177.34	885.75	1048.28	1030.14
23	1079.56	982.11	1216.77	1089.61
24	1163.73	1213.30	1416.15	1259.82
25	1375.87	1408.10	1236.41	1339.01
26	1427.76	1414.90	1133.76	1318.16
27	1203.18	1030.28	1213.08	1145.66
TOTAL	1273.04	1252.70	1234.48	1253.31

HOUSTON COMPOSITE NOC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	1408.39	1342.40	1405.21	1385.00
2	1556.94	1425.53	1517.27	1498.89
3	1327.51	1287.01	1323.86	1312.67
4	1369.56	1445.72	1243.16	1350.20
5	826.65	733.58	1060.96	863.29
6	2223.63	1839.71	1774.95	1936.42
7	1580.08	1016.46	847.78	1108.37
8	1919.20	1800.10	1592.72	1765.44
9	1424.76	1297.32	1276.96	1331.44
10	1163.70	1197.59	1198.11	1186.36
11	1197.67	775.98	625.80	834.72
12	1294.66	1107.99	1223.97	1206.39
13	1159.74	1186.95	1128.40	1158.12
14	1412.33	1418.17	1451.44	1427.21
15	661.22	570.36	851.76	684.86
16	1715.81	1472.29	1401.45	1524.09
17	1072.33	798.45	671.88	831.68
18	1489.05	1710.73	1462.04	1550.06
19	1330.36	1272.76	1132.52	1242.38
20	1221.55	1054.54	913.93	1055.91
21	1070.83	930.17	937.01	977.26
22	1168.97	1087.03	754.19	985.92
23	985.30	920.55	916.70	940.33
24	1201.12	1254.08	1186.88	1213.68
25	1411.87	1442.29	1104.97	1310.38
26	1340.96	1261.26	806.95	1109.23
27	825.79	959.99	1113.45	959.26
TOTAL	1270.21	1165.17	1107.79	1179.16

COMPOSITE NOC

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	1434.84	1339.23	1580.50	1448.16
2	1628.58	1567.21	1572.01	1589.02
3	1405.16	1394.57	1313.20	1370.35
4	1409.88	1403.93	1261.38	1356.62
5	879.98	841.71	1043.80	917.80
6	1866.17	1464.43	1737.63	1680.83
7	1627.76	1296.46	1148.58	1343.29
8	1784.77	1727.03	1521.47	1673.85
9	1441.40	1438.62	1474.36	1451.37
10	1345.18	1374.41	1337.40	1352.23
11	1035.60	905.94	789.59	904.82
12	1165.89	1025.31	1071.67	1086.07
13	1136.66	1187.76	1130.60	1151.38
14	1429.52	1451.62	1390.57	1423.68
15	807.66	654.25	743.14	732.28
16	1472.91	1492.61	1443.33	1469.47
17	1056.85	926.89	685.06	875.50
18	1395.05	1506.69	1394.91	1431.26
19	1307.70	1297.31	1180.28	1260.41
20	1147.33	1178.81	1054.20	1125.51
21	1081.46	1010.76	991.44	1027.16
22	1173.15	981.24	889.16	1007.79
23	1031.35	950.83	1056.13	1011.75
24	1182.27	1233.52	1296.46	1236.53
25	1393.75	1425.09	1168.84	1324.12
26	1383.68	1335.88	956.49	1209.19
27	996.78	994.51	1162.20	1048.32
TOTAL	1271.63	1208.15	1169.42	1215.67
CITY-				
1	1273.04	1252.70	1234.48	1253.31
2	1270.21	1165.17	1107.79	1179.16
TOTAL	1271.62	1208.14	1169.42	1215.67

COMPOSITE NOC 387<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	1514.21	1385.00	1448.16
2	1684.57	1498.89	1589.02
3	1430.58	1312.67	1370.35
4	1363.08	1350.20	1356.62
5	975.77	863.29	917.80
6	1458.99	1936.42	1680.83
7	1628.01	1108.37	1343.29
8	1587.01	1765.44	1673.85
9	1582.10	1331.44	1451.37
10	1541.31	1186.36	1352.23
11	980.81	834.72	904.82
12	977.75	1206.39	1086.07
13	1144.70	1158.12	1151.38
14	1420.16	1427.21	1423.68
15	782.99	684.86	732.28
16	1416.82	1524.09	1469.47
17	921.63	831.68	875.50
18	1321.57	1550.06	1431.26
19	1278.71	1242.38	1260.41
20	1199.70	1055.91	1125.51
21	1079.62	977.26	1027.16
22	1030.14	985.92	1007.79
23	1088.61	940.33	1011.75
24	1259.82	1213.68	1236.53
25	1338.01	1310.38	1324.12
26	1318.16	1109.23	1209.19
27	1145.66	959.26	1048.32
TOTAL	1253.31	1179.17	1215.68

TABLE E-9

Mass Composite

Kansas City

Houston

Combined Cities

Combined Phases

HC
CO
NO
NOC

KANSAS CITY MASS MC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	3.29	3.48	3.84	3.53
2	2.73	2.89	2.73	2.78
3	3.20	3.92	3.73	3.61
4	4.24	4.23	3.96	4.14
5	3.72	4.88	5.03	4.51
6	2.73	2.93	2.74	2.80
7	2.46	2.97	2.65	2.69
8	4.09	4.61	4.85	4.51
9	3.29	3.84	3.76	3.62
10	3.77	3.62	3.37	3.58
11	4.01	3.55	4.23	3.92
12	3.13	3.40	3.70	3.40
13	2.71	2.57	2.34	2.53
14	4.38	5.29	4.67	4.77
15	4.51	5.19	4.86	4.84
16	3.77	4.08	3.66	3.83
17	3.64	3.80	3.72	3.72
18	3.06	3.02	2.66	2.91
19	3.14	3.14	2.92	3.06
20	3.77	4.08	4.17	4.00
21	3.01	3.39	3.42	3.27
22	2.82	3.44	3.18	3.14
23	3.16	4.36	3.81	3.75
24	3.41	3.43	3.44	3.43
25	2.52	2.55	2.56	2.54
26	2.03	3.20	2.91	2.66
27	2.13	2.27	2.70	2.36
TOTAL	3.22	3.56	3.46	3.41

HOUSTON MASS HC 390<

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	3.19	3.19	3.28	3.22
2	2.81	3.38	3.23	3.13
3	4.39	3.92	3.66	3.98
4	4.09	3.51	4.16	3.91
5	4.33	4.21	3.51	4.00
6	3.07	2.99	3.19	3.08
7	2.61	3.08	3.15	2.94
8	4.55	5.33	3.56	4.42
9	4.06	4.05	4.00	4.04
10	3.69	3.49	3.43	3.54
11	4.33	3.70	5.11	4.34
12	2.94	3.33	3.22	3.16
13	2.33	2.32	2.55	2.40
14	4.11	4.77	5.15	4.66
15	5.94	5.65	4.64	5.38
16	4.02	3.87	3.72	3.87
17	5.26	4.18	5.90	5.06
18	3.48	3.16	3.19	3.28
19	3.28	3.29	2.91	3.16
20	4.65	4.35	4.78	4.59
21	3.49	3.88	3.80	3.72
22	3.37	2.61	3.33	3.08
23	3.53	3.58	3.22	3.44
24	3.32	3.43	3.26	3.33
25	2.38	2.57	2.24	2.39
26	3.32	3.69	4.71	3.87
27	2.60	3.01	3.59	3.04
TOTAL	3.58	3.58	3.64	3.60

MASS HC

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	3.53	3.22	3.37
2	2.78	3.13	2.95
3	3.61	3.98	3.79
4	4.14	3.91	4.02
5	4.51	4.00	4.24
6	2.80	3.08	2.94
7	2.69	2.94	2.81
8	4.51	4.42	4.46
9	3.62	4.04	3.82
10	3.58	3.54	3.56
11	3.92	4.34	4.13
12	3.40	3.16	3.28
13	2.53	2.40	2.47
14	4.77	4.66	4.71
15	4.84	5.38	5.10
16	3.83	3.87	3.85
17	3.72	5.06	4.34
18	2.91	3.28	3.09
19	3.06	3.16	3.11
20	4.00	4.59	4.29
21	3.27	3.72	3.49
22	3.14	3.08	3.11
23	3.75	3.44	3.59
24	3.43	3.33	3.38
25	2.54	2.39	2.47
26	2.66	3.87	3.21
27	2.36	3.04	2.68
TOTAL	3.41	3.60	3.50

MASS HC

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	3.24	3.33	3.55	3.37
2	2.77	3.13	2.97	2.95
3	3.75	3.92	3.70	3.79
4	4.17	3.85	4.06	4.02
5	4.01	4.53	4.20	4.24
6	2.90	2.96	2.96	2.94
7	2.53	3.03	2.89	2.81
8	4.31	4.96	4.15	4.46
9	3.66	3.94	3.88	3.82
10	3.73	3.55	3.40	3.56
11	4.17	3.63	4.65	4.13
12	3.04	3.37	3.45	3.28
13	2.51	2.44	2.44	2.47
14	4.24	5.03	4.90	4.71
15	5.17	5.42	4.75	5.10
16	3.89	3.97	3.69	3.85
17	4.38	3.99	4.69	4.34
18	3.26	3.09	2.91	3.09
19	3.21	3.22	2.91	3.11
20	4.19	4.21	4.46	4.29
21	3.24	3.63	3.60	3.49
22	3.08	3.00	3.26	3.11
23	3.34	3.95	3.50	3.59
24	3.36	3.43	3.35	3.38
25	2.45	2.56	2.39	2.47
26	2.60	3.44	3.70	3.21
27	2.36	2.61	3.11	2.68
TOTAL	3.39	3.57	3.55	3.50
CITY-				
1	3.22	3.56	3.46	3.41
2	3.58	3.58	3.64	3.60
TOTAL	3.39	3.57	3.55	3.50

KANSAS CITY PASS CC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	28.66	31.25	28.16	29.33
2	30.81	27.32	30.39	29.46
3	35.36	45.93	46.24	42.19
4	45.41	48.35	50.36	48.00
5	54.15	65.77	61.90	60.41
6	28.44	35.26	26.62	29.89
7	18.34	19.86	22.39	20.13
8	28.77	27.87	27.06	27.89
9	24.81	22.69	27.10	24.80
10	31.32	30.98	38.18	33.34
11	57.84	50.78	57.01	55.12
12	36.52	44.05	47.95	42.57
13	41.35	30.52	28.15	32.87
14	38.12	40.69	47.40	41.90
15	62.88	70.02	63.52	65.40
16	48.96	50.32	48.13	49.13
17	45.49	47.94	55.86	49.57
18	35.02	34.68	30.93	33.49
19	40.87	37.17	30.98	36.11
20	57.08	49.71	46.06	50.75
21	46.93	52.70	46.09	48.49
22	41.62	51.82	37.03	43.07
23	62.66	71.84	53.96	62.39
24	55.45	51.07	50.38	52.26
25	33.96	28.54	38.97	33.55
26	22.91	25.87	24.86	24.52
27	14.25	18.12	13.75	15.26
TOTAL	37.21	38.60	37.64	37.82

HOUSTON MASS CO

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	28.46	33.00	30.30	30.53
2	32.54	43.54	39.30	39.18
3	31.22	43.11	45.42	39.39
4	45.56	35.86	45.67	42.10
5	66.45	67.79	44.21	58.40
6	19.63	22.08	22.67	21.42
7	20.32	42.56	42.11	33.15
8	25.20	35.22	35.14	31.48
9	38.27	34.48	43.05	38.44
10	34.64	35.93	38.37	36.28
11	63.79	63.02	68.43	65.04
12	30.87	36.31	32.04	32.99
13	22.76	25.50	30.80	26.15
14	38.35	39.40	39.94	39.22
15	79.47	76.51	65.84	73.70
16	43.37	44.65	50.87	46.19
17	56.37	50.49	59.51	55.33
18	36.88	36.56	37.03	36.82
19	37.87	42.20	40.41	40.12
20	56.22	59.39	77.88	63.83
21	48.90	59.10	52.46	53.33
22	50.25	42.07	49.67	47.17
23	71.03	70.74	74.74	72.15
24	48.95	51.06	51.90	50.62
25	32.62	38.01	47.12	38.80
26	27.44	28.00	33.28	29.46
27	19.42	23.91	19.98	21.01
TOTAL	38.01	41.58	42.91	40.78

MASS CO

		PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-					
	1	28.56	32.12	29.21	29.92
	2	31.66	34.49	34.56	33.54
	3	33.23	44.50	45.82	40.77
	4	45.48	41.64	47.96	44.95
	5	59.99	66.77	52.31	59.39
	6	23.63	27.91	24.57	25.30
	7	19.31	29.07	30.71	25.83
	8	26.93	31.33	30.83	29.63
	9	30.81	27.97	34.16	30.88
	10	32.94	33.36	38.28	34.78
	11	60.74	56.57	62.46	59.87
	12	33.57	39.99	39.19	37.47
	13	30.68	27.90	29.45	29.32
	14	38.24	40.04	43.51	40.54
	15	70.69	73.19	64.67	69.43
	16	46.08	47.40	49.48	47.63
	17	50.64	49.20	57.65	52.37
	18	35.94	35.61	33.84	35.12
	19	39.34	39.61	35.38	38.06
	20	56.65	54.34	59.89	56.91
	21	47.91	55.81	49.17	50.85
	22	45.73	46.69	42.88	45.07
	23	66.71	71.29	63.50	67.09
	24	52.10	51.06	51.13	51.43
	25	33.28	32.94	42.85	36.08
	26	25.07	26.92	28.77	24.88
	27	16.64	20.82	16.58	17.91
	TOTAL	37.61	40.06	40.19	39.27
CITY-					
	1	37.21	38.60	37.64	37.82
	2	38.01	41.58	42.91	40.78
	TOTAL	37.61	40.06	40.19	39.27

MASS CO

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	29.33	30.53	29.92
2	29.46	38.18	33.54
3	42.19	39.39	40.77
4	48.00	42.10	44.95
5	60.41	58.40	59.39
6	29.89	21.42	25.30
7	20.13	33.15	25.83
8	27.89	31.48	29.63
9	24.80	38.44	30.88
10	33.34	36.28	34.78
11	55.12	65.04	59.87
12	42.57	32.99	37.47
13	32.87	26.15	29.32
14	41.90	39.22	40.54
15	65.40	73.70	69.43
16	49.13	46.19	47.63
17	49.57	55.33	52.37
18	33.49	36.82	35.12
19	36.11	40.12	38.06
20	50.75	63.83	56.91
21	48.49	53.33	50.85
22	43.07	47.17	45.07
23	62.39	72.15	67.09
24	52.26	50.62	51.43
25	33.55	38.80	36.08
26	24.52	29.46	26.88
27	15.26	21.01	17.91
TOTAL	37.82	40.78	39.27

KANSAS CITY MASS NOX

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	5.40	4.31	6.16	5.24
2	6.33	5.39	5.80	5.83
3	6.42	5.52	5.47	5.79
4	6.99	5.48	6.05	6.14
5	4.55	3.86	4.75	4.37
6	6.08	4.01	6.32	5.36
7	6.08	4.94	5.21	5.39
8	7.07	6.04	6.32	6.47
9	6.44	5.69	7.20	6.41
10	7.30	6.34	6.89	6.83
11	4.60	4.63	4.20	4.47
12	4.39	3.58	3.78	3.90
13	4.76	4.27	4.89	4.63
14	6.28	5.37	5.86	5.82
15	4.54	2.99	3.01	3.45
16	5.64	5.97	6.81	6.12
17	4.89	4.27	3.26	4.08
18	5.80	5.21	5.61	5.54
19	6.05	5.67	5.45	5.72
20	5.22	5.67	5.60	5.49
21	4.98	4.44	4.52	4.64
22	5.76	3.74	4.19	4.49
23	5.19	4.20	5.41	4.91
24	5.73	5.01	6.78	5.79
25	7.19	6.35	5.75	6.40
26	3.28	2.88	2.50	2.87
27	3.52	2.71	3.41	3.19
TOTAL	5.47	4.64	5.06	5.04

HOUSTON MASS NOX

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	3.91	4.23	3.76	3.96
2	4.54	4.48	4.14	4.38
3	4.72	4.82	4.45	4.66
4	5.05	6.03	4.17	5.03
5	3.24	3.09	3.63	3.31
6	6.52	6.00	4.80	5.73
7	4.48	3.12	2.15	3.11
8	6.62	6.62	5.09	6.06
9	4.98	5.01	4.02	4.65
10	4.45	4.98	4.14	4.51
11	4.85	3.43	2.33	3.38
12	4.17	4.01	3.67	3.95
13	3.79	4.39	3.35	3.82
14	4.86	5.34	4.62	4.93
15	2.37	2.18	2.82	2.44
16	6.18	5.63	4.85	5.52
17	3.69	3.14	2.37	3.02
18	5.50	6.43	4.70	5.50
19	5.24	5.28	4.18	4.87
20	4.45	4.47	3.34	4.05
21	3.88	3.52	3.20	3.52
22	4.59	4.51	2.79	3.87
23	3.55	3.88	3.12	3.50
24	4.74	5.38	4.29	4.78
25	5.70	6.29	4.16	5.30
26	2.50	2.42	1.40	2.04
27	1.92	2.37	2.31	2.19
TOTAL	4.30	4.29	3.48	4.00

MASS NOX

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	4.60	4.27	4.81	4.56
2	5.36	4.91	4.90	5.05
3	5.51	5.16	4.93	5.19
4	5.94	5.75	5.02	5.56
5	3.84	3.45	4.15	3.80
6	6.30	4.90	5.51	5.54
7	5.22	3.92	3.35	4.09
8	6.84	6.32	5.67	6.26
9	5.66	5.34	5.38	5.46
10	5.70	5.62	5.34	5.55
11	4.72	3.99	3.13	3.89
12	4.28	3.79	3.73	3.92
13	4.25	4.33	4.05	4.21
14	5.53	5.36	5.20	5.36
15	3.28	2.55	2.91	2.90
16	5.90	5.80	5.74	5.82
17	4.25	3.66	2.78	3.51
18	5.65	5.79	5.14	5.52
19	5.63	5.47	4.77	5.28
20	4.82	5.03	4.32	4.72
21	4.30	3.95	3.80	4.04
22	5.14	4.11	3.42	4.16
23	4.30	4.04	4.11	4.15
24	5.21	5.19	5.39	5.26
25	6.40	6.32	4.89	5.82
26	2.87	2.64	1.87	2.42
27	2.60	2.53	2.81	2.64
TOTAL	4.85	4.46	4.20	4.49
CITY-				
1	5.47	4.64	5.06	5.04
2	4.30	4.29	3.48	4.00
TOTAL	4.85	4.46	4.20	4.49

MASS NOX

400<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	5.24	3.96	4.56
2	5.83	4.38	5.05
3	5.79	4.66	5.19
4	6.14	5.03	5.56
5	4.37	3.31	3.80
6	5.36	5.73	5.54
7	5.39	3.11	4.09
8	6.47	6.06	6.26
9	6.41	4.65	5.46
10	6.83	4.51	5.55
11	4.47	3.38	3.89
12	3.90	3.95	3.92
13	4.63	3.82	4.21
14	5.82	4.93	5.36
15	3.45	2.44	2.90
16	6.12	5.52	5.82
17	4.09	3.02	3.51
18	5.54	5.50	5.52
19	5.72	4.87	5.28
20	5.49	4.05	4.72
21	4.64	3.52	4.04
22	4.49	3.87	4.16
23	4.91	3.50	4.15
24	5.79	4.78	5.26
25	6.40	5.30	5.82
26	2.87	2.04	2.42
27	3.19	2.19	2.64
TOTAL	5.04	4.00	4.49

KANSAS CITY MASS NOXC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	4.55	4.19	5.78	4.80
2	5.41	5.35	5.04	5.27
3	5.52	5.65	4.87	5.33
4	5.96	5.63	5.26	5.61
5	3.83	3.96	4.26	4.02
6	5.12	3.85	5.58	4.79
7	5.07	5.01	4.73	4.93
8	6.18	6.22	5.48	5.95
9	5.41	5.81	6.30	5.83
10	6.35	6.43	6.01	6.26
11	3.92	4.63	4.34	4.29
12	3.69	3.33	3.29	3.43
13	4.07	4.37	4.18	4.20
14	5.47	5.63	5.04	5.37
15	3.89	2.97	2.63	3.12
16	4.84	6.01	5.93	5.57
17	4.15	4.34	2.79	3.69
18	4.95	5.04	5.02	5.00
19	5.28	5.43	5.06	5.26
20	4.45	5.46	5.07	4.98
21	4.31	4.35	4.17	4.28
22	4.91	3.71	4.39	4.31
23	4.47	4.11	5.08	4.54
24	4.85	5.07	5.93	5.26
25	6.07	6.22	5.45	5.90
26	2.86	2.83	2.27	2.64
27	3.00	2.56	3.08	2.87
TOTAL	4.67	4.61	4.56	4.61

HOUSTON MASS NOXC

DISPLACEMENT-	PHASE 1	PHASE 2	PHASE 3	TOTAL
1	4.27	4.13	4.35	4.25
2	4.83	4.46	4.74	4.68
3	5.00	4.89	5.03	4.98
4	5.44	5.79	4.95	5.38
5	3.43	3.07	4.39	3.59
6	7.29	5.98	5.68	6.28
7	4.64	3.01	2.50	3.27
8	7.24	6.70	5.97	6.61
9	5.31	4.92	4.79	5.00
10	4.75	4.86	4.83	4.81
11	5.23	3.38	2.74	3.64
12	4.60	3.94	4.34	4.28
13	4.13	4.25	4.04	4.14
14	5.11	5.12	5.26	5.16
15	2.52	2.19	3.24	2.61
16	6.66	5.73	5.40	5.91
17	4.23	3.17	2.65	3.29
18	5.70	6.54	5.57	5.92
19	5.39	5.23	4.64	5.08
20	5.07	4.40	3.84	4.41
21	4.11	3.59	3.63	3.77
22	4.88	4.55	3.15	4.12
23	3.92	3.71	3.68	3.77
24	5.01	5.24	4.96	5.07
25	6.23	6.37	4.88	5.78
26	2.69	2.52	1.59	2.21
27	2.00	2.34	2.71	2.33
TOTAL	4.62	4.25	4.03	4.30

MASS NOXC

	PHASE 1	PHASE 2	PHASE 3	TOTAL
DISPLACEMENT-				
1	4.41	4.16	5.02	4.51
2	5.11	4.89	4.89	4.96
3	5.25	5.26	4.95	5.15
4	5.69	5.71	5.10	5.49
5	3.62	3.49	4.32	3.79
6	6.11	4.80	5.63	5.49
7	4.85	3.88	3.44	4.02
8	6.69	6.46	5.72	6.27
9	5.36	5.35	5.49	5.40
10	5.49	5.59	5.38	5.49
11	4.53	3.95	3.45	3.95
12	4.17	3.62	3.78	3.83
13	4.10	4.31	4.11	4.17
14	5.28	5.37	5.15	5.27
15	3.13	2.55	2.92	2.86
16	5.68	5.87	5.66	5.73
17	4.19	3.71	2.72	3.48
18	5.31	5.74	5.29	5.44
19	5.34	5.33	4.85	5.17
20	4.75	4.91	4.41	4.69
21	4.21	3.95	3.89	4.02
22	4.89	4.11	3.72	4.21
23	4.19	3.91	4.33	4.14
24	4.93	5.16	5.42	5.17
25	6.15	6.29	5.16	5.84
26	2.78	2.67	1.90	2.42
27	2.45	2.45	2.89	2.59
TOTAL	4.65	4.43	4.29	4.45
CITY-				
1	4.67	4.61	4.56	4.61
2	4.62	4.25	4.03	4.30
TOTAL	4.65	4.43	4.29	4.45

MASS NOXC 404<

DISPLACEMENT-	KANSAS CTY	HOUSTON	TOTAL
1	4.80	4.25	4.51
2	5.27	4.68	4.96
3	5.33	4.98	5.15
4	5.61	5.38	5.49
5	4.02	3.59	3.79
6	4.79	6.28	5.49
7	4.93	3.27	4.02
8	5.95	6.61	6.27
9	5.83	5.00	5.40
10	6.26	4.81	5.49
11	4.29	3.64	3.95
12	3.43	4.28	3.83
13	4.20	4.14	4.17
14	5.37	5.16	5.27
15	3.12	2.61	2.86
16	5.57	5.91	5.73
17	3.69	3.29	3.48
18	5.00	5.92	5.44
19	5.26	5.08	5.17
20	4.98	4.41	4.69
21	4.28	3.77	4.02
22	4.31	4.12	4.21
23	4.54	3.77	4.14
24	5.26	5.07	5.17
25	5.90	5.78	5.84
26	2.64	2.21	2.42
27	2.87	2.33	2.59
TOTAL	4.61	4.30	4.45

E-3

CALCULATIONS FOR UNBALANCED ANVAR

Introduction and Interpretation of Tables

This section shows the individual scale-up calculations which convert the balanced analysis of variance results for the subclass means into unbalanced analysis of various results for the individual tests. (See Section 7.2 of the main text and Section E-1 of the Appendix). These calculations are preceded by summary tables presenting the F-values for each emittant.

In the analysis of variance tables, the symbols have the following meaning:

D Vehicle displacement classes

T "Time", actually phases

C Cities

The tables are arranged in order of the twelve emittant variables:

Cycles 6, 7

1. HC, PPM
2. CO, Percent
3. NO_x, PPM
4. NO_x Corrected, PPM

Composite, Concentration

5. HC, PPM
6. CO, Percent
7. NO_x, PPM
8. NO_x Corrected, PPM

Composite, Mass, Grams/mile

9. HC
10. CO
11. NO_x
12. NO_x Corrected

A similar set of calculations for the log-transform data follows.

TABLE E-28

Summary Tables ANVAR F-Values

4/6/72

408<

F-VALUES FOR HC

Cycle 6,7 Composite Mass 5% Point

Non-transformed Data

D	11.01*	10.90*	7.83*	1.50
T	2.35	2.21	1.19	3.00
C	15.56*	14.78*	8.49*	3.84
T×D	0.94	0.92	0.67	1.36
T×C	2.13	1.68	1.83	3.00
D×C	3.25*	2.91*	2.29*	1.50
T×D×C	0.64	0.71	0.74	1.36

Log-transformed data

D	25.98*	24.27*	20.06*	1.50
T	2.80	3.48*	3.60*	3.00
C	17.16*	15.07*	10.30*	3.84
T×D	0.94	0.92	0.91	1.36
T×C	5.34*	3.04*	3.02*	3.00
D×C	2.47*	2.07*	2.04*	1.50
T×D×C	0.61	0.65	0.66	1.36

4/6/72

F-VALUES FOR CO

Cycle 6,7 Composite Mass 5% Pint

Non-transformed Data

D	14.20 *	16.36 *	29.39*	1.50
T	5.91 *	4.58 *	4.12 *	3.00
C	11.58 *	19.02 *	13.52 *	3.84
T×D	0.89	0.83	0.77	1.36
T×C	2.94	1.64	1.41	3.00
D×C	2.81 *	2.69 *	2.82 *	1.50
T×D×C	0.96	0.81	0.93	1.36

Log-transformed data

D	15.65 *	18.19 *	34.76 *	1.50
T	5.23 *	3.82 *	3.95 *	3.00
C	5.05 *	15.54 *	12.04 *	3.84
T×D	0.82	0.85	0.84	1.36
T×C	4.33 *	2.30	2.12	3.00
D×C	3.28 *	2.83 *	2.89 *	1.50
T×D×C	0.86	0.69	0.71	1.36

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4/6/72

410<

F - VALUES FOR NOX

	Cycle 6,7		Composite		Mass		5%
	Uncorr.	Corr.	Uncorr.	Corr.	Uncorr.	Corr.	Point
Non-transformed Data							
D	32.87*	22.55*	23.48*	23.25*	24.92*	25.11*	1.50
T	18.54*	3.70*	17.30*	3.79*	18.46*	2.98	3.00
C	126.18*	1.52	149.63*	4.15*	154.07*	6.47*	3.84
T x D	0.88	0.94	0.83	0.90	0.76	0.80	1.36
T x C	33.22*	4.66*	28.16*	4.32*	27.70*	4.39*	3.00
D x C	1.82*	2.41*	2.00*	2.57*	1.84*	2.40*	1.50
T x D x C	0.70	0.76	0.60	0.68	0.59	0.66	1.36
Log-transformed data							
D	16.88*	16.50*	18.06*	17.67*	22.97*	22.90*	1.50
T	18.39*	6.04*	19.31*	6.38*	17.72*	5.47*	3.00
C	110.72*	6.36*	130.35*	9.86*	135.16*	12.89*	3.84
T x D	1.15	1.14	1.08	1.09	1.04	1.06	1.36
T x C	20.95*	2.32*	18.97*	2.50	18.52*	2.64	3.00
D x C	1.68*	1.88*	1.76*	2.00*	1.76*	1.99*	1.50
T x D x C	0.80	0.94	0.76	0.91	0.71	0.85	1.36

"Corr." means corrected for humidity

4/6/72

GII<

F-Values for NOX

	Uncorrected			Corrected[a]			5%
	6,7	Comb.	Mass	6,7	Comb	Mass	Point
Non-transformed Data							
D	22.57[a]	23.43[a]	24.92[a]	22.55[a]	23.25[a]	25.11[a]	1.50
T	15.54[a]	17.30[a]	15.45[a]	3.70[a]	3.79[a]	2.98	3.00
C	126.18[a]	109.63[a]	154.07[a]	1.52[a]	4.15[a]	6.47[a]	3.84
T×D	0.88	0.88	0.76	0.94	0.90	0.80	1.36
T×C	33.23[a]	28.16[a]	27.70[a]	4.66[a]	4.22[a]	4.39[a]	3.00
D×C	1.82[a]	2.00[a]	1.84[a]	2.41[a]	2.57[a]	2.40[a]	1.50
T×D×C	0.70	0.60	0.59	0.76	0.68	0.66	1.36
Log-transformed data							
D	16.88[a]	18.06[a]	22.87[a]	16.50[a]	17.67[a]	22.90[a]	1.50
T	18.29[a]	19.31[a]	17.72[a]	6.04[a]	6.38[a]	5.47[a]	3.00
C	110.72[a]	130.23[a]	135.16[a]	6.36[a]	9.96[a]	12.89[a]	3.84
T×D	1.15	1.08	1.04	1.14	1.09	1.06	1.36
T×C	20.95[a]	18.97[a]	18.52[a]	2.36	2.60	2.64	3.00
D×C	1.68[a]	1.76[a]	1.75[a]	1.88[a]	2.00[a]	1.99[a]	1.50
T×D×C	0.80	0.76	0.71	0.94	0.91	0.85	1.36

a. For humidity

TABLE E-29

Work Sheets - Calculations

For Unbalanced ANVAR

CALCULATIONS FOR UNBALANCED ANVAR

Input from Data Retrieval Program

N_{ave}	Harmonic mean of number of values in each of the 162 subclasses.
MS_{error}	Mean square for error, car-to-car on individual test basis, one per car.

Output of Balanced ANVAR

Mean squares (MS) for effects on a mean basis (the mean of N_{ave} tests per subclass).

Procedure

Multiply MS by N_{ave} to put ANVAR results on individual basis.

$F = (\text{Multiplied MS})/MS_{error}$

4/6/72 414< non-transformed error terms

EFF	REC 1/N	DF	SS	MS
1	0.1165279200 02	1864	0.8889138570 08	0.4768851160 05
2	0.1167453080 02	1867	0.1871141260 04	0.1002218140 01
3	0.1143984520 02	1807	0.4242599880 09	0.2347860330 06
4	0.1143984520 02	1807	0.4077350480 09	0.2256419740 06
5	0.1165279200 02	1864	0.8779589680 08	0.4712809920 05
6	0.1167453080 02	1867	0.1806012920 04	0.9673141840 00
7	0.1143599960 02	1806	0.3532407740 09	0.1955978980 06
8	0.1143599960 02	1806	0.3428443280 09	0.1898362830 06
9	0.1165279200 02	1864	0.1151379760 05	0.6176990050 01
10	0.1167453080 02	1867	0.9217466310 06	0.4937046760 03
11	0.1143599960 02	1806	0.5117717930 04	0.2833790860 01
12	0.1143599960 02	1806	0.4996877680 04	0.2766820420 01

EFF	REPL	REPL SS	REPL MS
1	173	0.8340890000 06	0.4821323700 04
2	173	0.1050985000 02	0.6075057800-01
3	173	0.6530258500 07	0.3774715900 05
4	173	0.7646483900 07	0.4419932890 05
5	173	0.8339035000 06	0.4820251450 04
6	173	0.1364880000 02	0.7889479770-01
7	173	0.5060447000 07	0.2925113870 05
8	173	0.6231079200 07	0.3601779890 05
9	173	0.1336939000 03	0.7727971100 00
10	173	0.8188225550 04	0.4733078350 02
11	173	0.7390590000 02	0.4272017340 00
12	173	0.9224840000 02	0.5332277460 00

Effluent	Standard Deviations: Car-to-car	Test-to-test	Ratio
1	218.38	69.436	0.317
2	1.0011	0.2465	0.246
3	484.55	194.29	0.401
4	475.02	210.24	0.443
5	219.27	69.428	0.316
6	0.9835	0.2869	0.286
7	442.26	171.03	0.387
8	436.70	189.79	0.434
9	2.4963	0.9741	0.394
10	22.219	6.8797	0.310
11	1.6814	0.6536	0.389
12	1.6684	0.7302	0.440

Approximate ratios
HC 0.33
CO 0.38
NOx 0.39

4/6/72 log-transform error terms

415<

EFF	REC 1/N	DF	SS	MS
1	0.1165279200 02	1864	0.4913631980 02	0.2636068660-01
2	0.1167453080 02	1867	0.1194868030 03	0.6399935870-01
3	0.1143984520 02	1807	0.6277496950 02	0.3473088350-01
4	0.1143984520 02	1807	0.6247039240 02	0.3457132950-01
5	0.1165279200 02	1864	0.4530119650 02	0.2430321700-01
6	0.1167453080 02	1867	0.7965181680 02	0.4266209780-01
7	0.1143599960 02	1806	0.5904682080 02	0.3269480660-01
8	0.1143599960 02	1806	0.5887214640 02	0.3259808770-01
9	0.1165279200 02	1864	0.4564917450 02	0.2448999050-01
10	0.1167453080 02	1867	0.7876146310 02	0.4218610770-01
11	0.1143599960 02	1806	0.6245461940 02	0.3458173830-01
12	0.1143599960 02	1806	0.6262158520 02	0.3467418890-01

EFF	REPL	REPL SS	REPL MS
1	173	0.5628414500 00	0.3253418790-02
2	173	0.6962925460 00	0.4024812400-02
3	173	0.9099876280 00	0.5260C44090-02
4	173	0.9984615640 00	0.5771454120-02
5	173	0.5849360200 00	0.3381133070-02
6	173	0.5655205120 00	0.3268904700-02
7	173	0.7794972200 00	0.4505764280-02
8	173	0.8596829380 00	0.4969265540-02
9	173	0.5892374930 00	0.3405997070-02
10	173	0.5659424310 00	0.3271343530-02
11	173	0.7780846290 00	0.4497599010-02
12	173	0.8646003210 00	0.4997689710-02

Effluent	Standard Deviations: Car-to-car, log units	Car-to-car, per cent	Test-to-test, log units	Test-to-test, per cent	Ratio, log units	Ratio, value
1	0.162	45.3	0.0570	14.0	0.105	0.274
2	0.293	79.1	0.0634	15.7	0.190	0.547
3	0.186	53.6	0.0725	18.2	0.114	0.299
4	0.186	53.4	0.0760	19.1	0.110	0.288
5	0.186	48.2	0.0591	14.3	0.098	0.252
6	0.207	60.9	0.0572	14.0	0.149	0.411
7	0.181	51.6	0.0871	16.7	0.114	0.299
8	0.181	51.6	0.0704	17.6	0.110	0.288
9	0.186	43.4	0.0584	14.4	0.098	0.254
10	0.208	60.8	0.0572	14.1	0.148	0.407
11	0.186	53.4	0.0671	16.7	0.119	0.315
12	0.186	53.6	0.0709	17.7	0.116	0.306

Note: values are rounded for presentation

4/6/72

6,7 HC CONCN

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.636848359E 05	0.6368483[illegible]E 05	24.39
T	54	2	0.191918398E 05	0.959591797E 04	3.68
CXT	27	2	0.174215117E 05	0.871075391E 04	3.34
D	6	26	0.117193400E 07	0.450743828E 05	17.26
CxD	3	26	0.345693000E 06	0.132958828E 05	5.09
TXD	2	52	0.199483000E 06	0.383621143E 04	1.47
ERROR		52	0.135777625E 06	0.261110815E 04	
ADJUSTED TOTAL		161	0.195318585D 07		
CORRECTION TERM		1	0.145035583D 08		
UNADJUSTED TOTAL		162	0.164567442D 08		

Effect	Degrees of Freedom	Mean Squares / 10000		F-Value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	4.507	52.52	11.01*	1.50
T	2	0.960	11.18	2.35	3.00
C	1	6.368	74.21	15.56*	3.84
TxD	52	0.384	4.47	0.94	1.36
TxC	2	0.871	10.15	2.13	3.00
DxC	26	1.330	15.49	3.25*	1.50
TxDxC	52	0.261	3.04	0.64	1.36
Error	1864	—	4.77[c]	1.00	

a. Mean of an average of 11.6528 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 218 ppm.

4/6/72 6,417 CO CONCN

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.1013729 10E 01	0.1013729 1CE 01	12.11
T	54	2	0.1035313 61E 01	0.5176568 03E 00	6.18
CXT	27	2	0.5152454 38E 00	0.2576227 19E 00	3.08
D	6	26	0.3232672 12E 02	0.1243334 77E 01	14.85
CXD	3	26	0.6386138 92E 01	0.2456207 28E 00	2.93
TXD	2	52	0.4060638 43E 01	0.7808917 76E-01	0.93
ERROR		52	0.4353541 37E 01	0.8372193 57E-01	
ADJUSTED TOTAL		161	0.4969132 81D 02		
CORRECTION TERM		1	0.4701640 57D 03		

Effect	Degrees of Freedom	Mean Squares		F- Value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	1.2483	14.515	14.20*	1.50
T	2	0.5177	6.043	5.91*	3.00
C	1	1.0157	11.835	11.58*	3.84
TxD	52	0.0781	0.912	0.89	1.36
TxC	2	0.2577	3.008	2.94	3.00
DxC	26	0.2456	2.868	2.81*	1.50
TxDxC	52	0.0837	0.977	0.96	1.36
Error	1867	—	1.022[c]	1.00	1.00

a. Mean of an average of 11.6746 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 1.00 per cent. CO.

4/6/72

418<

6,7 NOX CONCN

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.2589728000E 07	0.2589728000E 07	180.82
T	54	2	0.6378001888E 06	0.3189000063E 06	22.27
CXT	27	2	0.1364526000E 07	0.6817630000E 06	47.60
D	6	26	0.1204199200E 08	0.4631535000E 06	32.34
CXD	3	26	0.9713580000E 06	0.3735992100E 05	2.61
TXD	2	52	0.9412410000E 06	0.1810078520E 05	1.26
ERROR		52	0.7447498750E 06	0.1432210340E 05	
ADJUSTED TOTAL		161	0.1929039510 08		
CORRECTION TERM		1	0.3451985620 09		
UNADJUSTED TOTAL		162	0.3644889570 09		

Effect	Degrees of freedom	Mean Squares /10000		F- Value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	46.315	529.841	22.57*	1.50
T	2	31.890	364.816	15.54*	3.00
C	1	258.973	2962.610	126.18*	3.84
TxD	52	1.810	20.707	0.88	1.36
TxC	2	68.176	779.927	33.22*	3.00
DxC	26	3.736	42.739	1.82*	1.50
TxDxC	52	1.432	16.382	0.70	1.36
Error	1807	—	23.479[c]	1.00	1.00

a. Mean of an average of 11.4398 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 485 ppm

4/6/72 6,7 NOX_c CONCN

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.300462461E 05	0.300462461E 05	2.01
T	54	2	0.146089375E 06	0.730446875E 05	4.89
CXT	27	2	0.183972438E 06	0.919861875E 05	6.16
D	6	26	0.115649750E 08	0.444806808E 06	29.77
CXD	3	26	0.123362700E 07	0.474471914E 05	3.18
TXD	2	52	0.961294000E 06	0.184998828E 05	1.24
ERROR		52	0.776945438E 06	0.149412578E 05	
ADJUSTED TOTAL		161	0.148976495D 08		
CORRECTION TERM		1	0.334997364D 09		
UNADJUSTED TOTAL		162	0.3498950140 09		

Effect	Degrees of Freedom	Mean Squares / 10000		F-value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	44.481	508.852	22.55*	1.50
T	2	7.304	83.562	3.70*	3.00
C	1	3.005	34.372	1.52	3.84
TxD	52	1.850	21.164	0.94	1.36
TxC	2	9.199	105.231	4.66*	3.00
DxC	26	4.745	54.279	2.41*	1.50
TxDxC	52	1.494	17.093	0.76	1.36
Error	1807	—	22.564[c]	1.00	

a. Mean of an average of 11.4398 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 475 ppm

4/6/72 HC COMPOSITE CONCN

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.598818984E 05	0.598818984E 05	20.74
T	54	2	0.179149844E 05	0.895749219E 04	3.10
CXT	27	2	0.135873047E 05	0.679365234E 04	2.35
D	6	26	0.114788900E 07	0.441495742E 05	15.29
CXD	3	26	0.306764000E 06	0.117986133E 05	4.09
TXD	2	52	0.193247000E 06	0.371628833E 04	1.29
ERROR		52	0.150169438E 06	0.288787378E 04	
ADJUSTED TOTAL		161	0.1889453630 07		
CORRECTION TERM		1	0.1747469390 08		
UNADJUSTED TOTAL		162	0.1936414760 08		

Effect	Degrees of freedom	Mean Squares/10000		F-value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	4.415	51.45	10.90*	1.50
T	2	0.896	10.44	2.21	3.00
C	1	5.988	69.78	14.78*	3.84
TxD	52	0.372	4.33	0.92	1.36
TxC	2	0.679	7.92	1.68	3.00
DxC	26	1.180	13.75	2.91*	1.50
TxDxC	52	0.289	3.37	0.71	1.36
Error	1864	—	4.72[c]	1.00	—

a. Mean of an average of 11.6528 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 217 ppm.

4/6/72 CO COMPOSITE CONCN

CX1<

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.157629776E 01	0.157629776E 01	23.35
T	54	2	0.747895777E 00	0.373947859E 00	5.54
CXT	27	2	0.271575391E 00	0.135787666E 00	2.01
D	6	26	0.352427063E 02	0.135548782E 01	20.08
CXD	3	26	0.578974915E 01	0.222682655E 00	3.30
TXD	2	52	0.358723450E 01	0.689852239E-01	1.02
ERROR		52	0.351106453E 01	0.675204396E-01	
ADJUSTED TOTAL		161	0.507265237D 02		
CORRECTION TERM		1	0.654608407D 03		
UNADJUSTED TOTAL		162	0.705334931D 03		

Effect	Degrees of Freedom	Mean Squares		F-value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	1.3555	15.825	16.36*	1.50
T	2	0.3739	4.366	4.58*	3.00
C	1	1.5763	18.403	19.02*	3.84
TxD	52	0.0690	0.805	0.83	1.36
TxC	2	0.1358	1.585	1.64	3.00
DxC	26	0.2227	2.600	2.69*	1.50
TxDxC	52	0.0675	0.788	0.81	1.36
Error	1867	—	0.967 [c]	1.00	

a. Mean of an average of 11.6745 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.984 per cent CO.

4/6/72 NOX COMPOSITE CONCN

422<

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.255919800E 07	0.255919800E 07	248.58
T	54	2	0.591888500E 06	0.295944250E 06	28.75
CXT	27	2	0.963175500E 06	0.481587750E 06	46.78
D	6	26	0.104171340E 08	0.400659000E 06	38.92
CXD	3	26	0.887345000E 06	0.341286523E 05	3.32
TXD	2	52	0.739360000E 06	0.142184609E 05	1.38
ERROR		52	0.535347313E 06	0.102951406E 05	
ADJUSTED TOTAL		161	0.166934484D 08		
CORRECTION TERM		1	0.2964262900 09		
UNADJUSTED TOTAL		162	0.3131197380 09		

Effect	Degrees of Freedom	Mean Squares/10000		F-value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	40.066	458.19	23.43*	1.50
T	2	29.594	338.44	17.30*	3.00
C	1	255.920	2926.70	149.63*	3.84
TxD	52	1.422	16.26	0.83	1.36
TxC	2	48.159	550.74	28.16*	3.00
DxC	26	3.413	39.03	2.00*	1.50
TxDxC	52	1.030	11.77	0.60	1.36
Error	1806	—	19.56[c]	1.00	

a. Mean of an average of 11.4360 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 442 ppm.

4/6/72 NOX_c COMPOSITE CONCN

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.689464375E 05	0.689464375E 05	6.08
T	54	2	0.125987938E 06	0.629939688E 05	5.56
CXT	27	2	0.140231375E 06	0.701156875E 05	6.19
D	6	26	0.100338660E 08	0.385917875E 06	34.05
CXD	3	26	0.110925300E 07	0.426635742E 05	3.76
TXD	2	52	0.780616000E 06	0.150118438E 05	1.32
ERROR		52	0.589399875E 06	0.113346094E 05	
ADJUSTED TOTAL		161	0.128483007D 08		
CORRECTION TERM		1	0.287895933D 09		
UNADJUSTED TOTAL		162	0.300744233D 09		

Effect	Degrees of freedom	Mean Squares / 10000		F- Value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	38.592	441.34	23.25*	1.50
T	2	6.299	72.04	3.79*	3.00
C	1	6.895	78.85	4.15*	3.84
T×D	52	1.501	17.17	0.90	1.36
T×C	2	7.012	80.18	4.22*	3.00
D×C	26	4.266	48.79	2.57*	1.50
T×D×C	52	1.133	12.96	0.68	1.36
Error	1806	—	18.98 [c]	1.00	

a. Mean of an average of 11.4360 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 436 ppm.

4/6/72 COMPOSITE HC MASS, g/MILE

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.450133038E 01	0.450133038E 01	11.48
T	54	2	0.125937176E 01	0.629685878E 00	1.61
CXT	27	2	0.193707085E 01	0.968535428E 00	2.47
D	6	26	0.107057138E 03	0.415219688E 01	10.59
CXD	3	26	0.315698090E 02	0.121422201E 01	3.10
TXD	2	52	0.183661652E 02	0.353195428E 00	0.90
ERROR	52	161	0.203948364E 02	0.392208338E 00	
ADJUSTED TOTAL	1	162	0.185985724D 03		
CORRECTION TERM			0.244704474D 04		
UNADJUSTED TOTAL			0.2633030470 04		

Effect	Degrees of Freedom	Mean Squares		F-value	
		Mean Basis	Individual Basis	Calcd.	Tables b
D	26	4.1522	48.385	7.83*	1.80
T	2	0.6297	7.338	1.19	3.00
C	1	4.5013	52.453	8.49*	3.84
TxD	52	0.3532	4.116	0.67	1.36
TxC	2	0.9685	11.286	1.83	3.00
DxC	26	1.2142	14.149	2.29*	1.50
TxDxC	52	0.3922	4.570	0.74	1.36
Error	1864	—	6.177c	1.00	

a. Mean of an average of 11.6528 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 2.49 g/mile

4/6/72

CO MASS, G/MILE

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.571854248E 03	0.571854248E 03	14.60
T	54	2	0.348451660E 03	0.174225830E 03	4.45
CXT	27	2	0.119186279E 03	0.595931396E 02	1.52
D	6	26	0.323113047E 05	0.124274247E 04	31.72
CXD	3	26	0.254870313E 04	0.980270386E 02	2.50
TXD	2	52	0.169806250E 04	0.326550446E 02	0.83
ERROR		52	0.203707178E 04	0.391744537E 02	
ADJUSTED TOTAL		161	0.3963463450 05		
CORRECTION TERM		1	0.3431273120 06		
UNADJUSTED TOTAL		162	0.3827619460 06		

Effect	Degrees of Freedom	Mean Squares		F- Value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	1242.74	14508.4	29.39 *	1.50
T	2	174.23	2034.0	4.12 *	3.00
C	1	571.85	6676.1	13.52 *	3.84
T×D	52	32.66	381.2	0.77	1.36
T×C	2	59.59	695.7	1.41	3.00
D×C	26	98.03	1144.4	2.32 *	1.50
T×D×C	52	39.17	457.3	0.93	1.36
Error	1867	—	493.7 [c]	1.00	

a. Mean of an average of 11.6745 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 22.22 per cent CO

4/6/72

NOX_c MASS G/MILE

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.156645012E 01	0.156645012E 01	9.81
T	54	2	0.144174194E 01	0.720870972E 00	4.52
CXT	27	2	0.212351704E 01	0.106175804E 01	6.65
D	6	26	0.157962906E 03	0.607549572E 01	38.06
CXD	3	26	0.150872955E 02	0.580280542E 00	3.63
TXD	2	52	0.100123138E 02	0.192544460E 00	1.21
ERROR		52	0.830152512E 01	0.159644662E 00	
ADJUSTED TOTAL		161	0.196495750D 03		
CORRECTION TERM		1	0.393766115D 04		
UNADJUSTED TOTAL		162	0.413615690D 04		

Effect	Degrees of Freedom	Mean Squares		F- Value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	6.078	69.479	25.11 *	1.50
T	2	0.721	8.244	2.98	3.00
C	1	1.566	17.914	6.47 *	3.84
TxD	52	0.193	2.202	0.80	1.36
TxC	2	1.062	12.142	4.39 *	3.00
DxC	26	0.580	6.636	2.40 *	1.50
TxDxC	52	0.160	1.826	0.66	1.36
Error	1806	—	2.767 [c]	1.00	

a. Mean of an average of 11.4360 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 1.66 g/mile

4/6/72

NOX MASS

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.381776886E 02	0.381776886E 02	261.09
T	54	2	0.765612602E 01	0.382806301E 01	26.18
CXT	27	2	0.137262440E 02	0.686312199E 01	46.94
D	6	26	0.160572220E 03	0.617585373E 01	42.24
CXD	3	26	0.118487244E 02	0.455720127E 00	3.12
TXD	2	52	0.983921814E 01	0.189215729E 00	1.29
ERROR		52	0.760354137E 01	0.146221936E 00	
ADJUSTED TOTAL		161	0.249423762D 03		
CORRECTION TERM		1	0.406272921D 04		
UNADJUSTED TOTAL		162	0.431215297D 04		

Effect	Degrees of Freedom	Mean Squares		F- Value	
		Mean Basis	Individual Basis	Calcd.	Tables [b]
D	26	6.176	70.627	24.92*	1.50
T	2	3.828	43.778	15.45*	3.00
C	1	38.178	436.600	154.07*	3.84
T×D	52	0.189	2.164	0.76	1.36
T×C	2	6.863	78.487	27.70*	3.00
D×C	26	0.456	5.212	1.84*	1.50
T×D×C	52	0.146	1.672	0.59	1.36
Error	1806	—	2.834[c]	1.00	

a. Mean of an average of 11.4360 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 1.68 g/mile

4/6/72 6,7 HC CONCN log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.388226509E-01	0.388226509E-01	28.13
T	54	2	0.126536936E-01	0.632684678E-02	4.58
CXT	27	2	0.241629034E-01	0.120814517E-01	8.75
D	6	26	0.152792835E 01	0.587664731E-01	42.58
CXD	3	26	0.145130157E 00	0.558192655E-02	4.04
TXD	2	52	0.110359192E 00	0.212229206E-02	1.54
ERROR		52	0.717671514E-01	0.138013740E-02	
ADJUSTED TOTAL		161	0.193082413D 01		
CORRECTION TERM		1	0.949028457D 03		
UNADJUSTED TOTAL		162	0.950959281D 03		

Effect	Degrees of Freedom	Mean Squares [d] ×10000		F-value	
		Mean Basis [a]	Individual Basis	Calcd.	Tables [b]
D	26	587.665	6847.93	25.98 *	1.50
T	2	63.268	737.25	2.80	3.00
C	1	388.227	4523.92	17.16 *	3.84
TxD	52	21.223	247.31	0.94	1.36
TxC	2	120.815	1407.83	5.34 *	3.00
DxC	26	55.819	650.45	2.47 *	1.50
TxDxC	52	13.801	160.82	0.61	1.36
Error	1864	—	263.61 [c]	1.00	1.00

a. Mean of an average of 11.6528 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.162 log units or 45.3 per cent.

d. Note that the mean squares are in log units

4/6/72 6,7 CO CONCN log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.276403762E-01	0.276403762E-01	5.85
T	54	2	0.573659241E-01	0.286829621E-01	6.05
CXT	27	2	0.474490821E-01	0.237245411E-01	5.01
D	6	26	0.221615791E 01	0.852367878E-01	17.99
CXD	3	26	0.467517853E 00	0.179814547E-01	3.79
TXD	2	52	0.235173225E 00	0.452256203E-02	0.95
ERROR		52	0.246429682E 00	0.47390312CE-02	
ADJUSTED TOTAL		161	0.329773406D 01		
CORRECTION TERM		1	0.3420769810 01		
UNADJUSTED TOTAL		162	0.6718503870 01		

Effect	Degrees of freedom	Mean Squares[d] × 10000		F- value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	852.368	9950.99	15.55 *	1.50
T	2	286.830	3348.60	5.23 *	3.00
C	1	276.404	3226.88	5.05 *	3.84
TxD	52	45.226	527.99	0.82	1.36
TxC	2	237.245	2769.73	4.33 *	3.00
DxC	26	179.815	2099.25	3.28 *	1.50
TxDxC	52	47.390	553.26	0.86	1.36
Error	1867	—	639.99[c]	1.00	1.00

a. Mean of an average of 11.6745 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 0.253 log units or 79.1 per cent
d. Note that the mean squares are in log units

4/6/72 6,7 NOX CONCN log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.336223662E 00	0.336223662E 00	138.09
T	54	2	0.111103177E 00	0.555515885E-01	22.82
CXT	27	2	0.127243161E 00	0.636215806E-01	26.13
D	6	26	0.133259296E 01	0.512535721E-01	21.05
CXD	3	26	0.132423401E 00	0.509320572E-02	2.09
TXD	2	52	0.181532860E 00	0.349101634E-02	1.43
ERROR		52	0.126611531E 00	0.243483693E-02	
ADJUSTED TOTAL		161	0.234773081D 01		
CORRECTION TERM		1	0.157685110D 04		
UNADJUSTED TOTAL		162	0.157919883D 04		

Effect	Degrees of Freedom	Mean Squares[d] x 10000		F-Value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	512.536	5863.33	16.88*	1.50
T	2	555.516	6355.02	18.29*	3.00
C	1	3362.237	38463.47	110.72*	3.84
TxD	52	34.910	399.37	1.15	1.36
TxC	2	636.216	7278.21	20.95*	3.00
DxC	26	50.932	582.65	1.68*	1.50
TxDxC	52	24.348	278.54	0.80	1.36
Error	1807	—	347.40[c]	1.00	1.00

a. Mean of an average of 11.4398 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.186 log units or 53.6 per cent

d. Note that the mean squares are in log units

4/6/72 6,7 NOX_c concn log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.192293711E-01	0.192293711E-01	6.76
T	54	2	0.364982411E-01	0.182491206E-01	6.41
CXT	27	2	0.140080340E-01	0.700401515E-02	2.46
D	6	26	0.129671574E 01	0.498736799E-01	17.53
CXD	3	26	0.148002625E 00	0.569240749E-02	2.00
TXD	2	52	0.179492950E 00	0.345178740E-02	1.21
ERROR		52	0.1479839096 00	0.284584425E-02	
ADJUSTED TOTAL		161	0.184193088D 01		
CORRECTION TERM		1	0.157399911D 04		
UNADJUSTED TOTAL		162	0.1575241050 04		

Effect	Degrees of freedom	Mean Squares [d] ×10000		F-value	
		Mean Basis [a]	Individual Basis	Calcd.	Tables [b]
D	26	498.787	5707.76	16.50*	1.50
T	2	182.491	2087.67	6.04*	3.00
C	1	192.294	2199.81	6.36*	3.84
T×D	52	34.518	394.88	1.14	1.36
T×C	2	70.040	801.25	2.32	3.00
D×C	26	56.924	651.20	1.88*	1.50
T×D×C	52	28.458	325.56	0.94	1.36
Error	1807	—	345.71 [c]	1.00	1.00

a. Mean of an average of 11.4398 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 0.186 log units or 53.4 per cent
d. Note that the mean squares are in log units

4/6/72 HC COMPOSITE CONCN log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.314211398E-01	0.314211398E-01	23.30
T	54	2	0.145057887E-01	0.725289434E-02	5.38
CXT	27	2	0.126667209E-01	0.633335859E-02	4.70
D	6	26	0.1316261 29E 01	0.506254323E-01	37.54
CXD	3	26	0.1119909 29E 00	0.430734083E-02	3.19
TXD	2	52	0.1000270 84E 00	0.192359769E-02	1.43
ERROR		52	0.701211095E-01	0.134848268E-02	
ADJUSTED TOTAL		161	0.1696994120 01		
CORRECTION TERM		1	0.9861346600 03		
UNADJUSTED TOTAL		162	0.9877916540 03		

Effect	Degrees of Freedom	Mean Squares [d] ×10000		F- value	
		Mean Basis [a]	Individual Basis	Calcd.	Tables [b]
D	26	596.254	5899.28	24.27 *	1.50
T	2	72.529	845.17	3.48 *	3.00
C	1	314.211	3661.44	15.07 *	3.84
T×D	52	19.236	224.15	0.92	1.36
T×C	2	63.334	738.09	3.04 *	3.00
D×C	26	43.073	501.92	2.07 *	1.50
T×D×C	52	13.484	157.13	0.65	1.36
Error	1864	—	243.03 [c]	1.00	1.00

a. Mean of an average of 11.6528 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 0.156 log units or 43.2 per cent
d. Note that the mean squares are in log units

4/6/72 CO COMPOSITE CONCN log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.568024516E-01	0.568024516E-01	22.43
T	54	2	0.278987326E-01	0.139493644E-01	5.51
CXT	27	2	0.168092214E-01	0.840460882E-02	3.32
D	6	26	0.172846127E 01	0.664792657E-01	26.25
CXD	3	26	0.269360542E 00	0.103600174E-01	4.09
TXD	2	52	0.160865784E 00	0.309357257E-02	1.22
ERROR		52	0.131684959E 00	0.253240298E-02	
ADJUSTED TOTAL		161	0.239188298D 01		
CORRECTION TERM		1	0.955479199D 01		
UNADJUSTED TOTAL		162	0.1194667500 02		

Effect	Degrees of freedom	Mean Squares [d] x10000		F- value	
		Mean Basis [a]	Individual Basis	Calcd.	Tables [b]
D	26	664793	7761.14	18.19*	1.50
T	2	139.494	1628.52	3.82*	3.00
C	1	568.025	6631.42	15.54*	3.84
TxD	52	30.936	361.16	0.85	1.36
TxC	2	84.046	981.20	2.30	3.00
DxC	26	103.600	1209.48	2.83*	1.50
TxDxC	52	25.324	295.65	0.69	1.36
Error	1867	—	426.63[c]	1.00	1.00

a. Mean of an average of 11.6748 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.207 log units or 60.9 per cent

d. Note that the mean squares are in log units

4/6/72 NOX COMPOSITE CONCN log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.372314513E 00	0.372314513E 00	170.96
T	54	2	0.110411584E 00	0.552057922E-01	25.35
CXT	27	2	0.108455241E 00	0.542276204E-01	24.90
D	6	26	0.134271812E 01	0.516430028E-01	23.71
CXD	3	26	0.130917549E 00	0.503528863E-02	2.31
TXD	2	52	0.160075188E 00	0.307836896E-02	1.41
ERROR		52	0.113246381E 00	0.217781495E-02	
ADJUSTED TOTAL		161	0.2338138630 01		
CORRECTION TERM		1	0.1544993930 04		
UNADJUSTED TOTAL		162	0.1547332070 04		

Effect	Degrees of Freedom	Mean Squares [d] x10000		F-value	
		Mean Basis [a]	Individual Basis	Calcd.	Tables [b]
D	26	516.430	5905.89	18.06*	1.50
T	2	552.057	6313.33	19.81*	3.00
C	1	3723.145	42577.89	130.83*	3.84
TxD	52	30.784	352.04	1.08	1.36
TxC	2	542.276	6201.47	18.97*	3.00
DxC	26	50.353	575.84	1.76*	1.50
TxDxC	52	21.778	249.05	0.76	1.36
Error	1806	—	326.95 [c]	1.00	1.00

a. Mean of an average of 11.4360 values in each cubolass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 0.181 log units or 51.6 per cent
d. Note that the mean squares are in log units

4/6/72 NOX_c COMPOSITE CONCN log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.284048207E-01	0.284048207E-01	10.91
T	54	2	0.363449231E-01	0.181724615E-01	6.98
CXT	27	2	0.148234107E-01	0.741170347E-02	2.85
D	6	26	0.130919266E 01	0.503535606E-01	19.33
CXD	3	26	0.148353577E 00	0.570590422E-02	2.19
TXD	2	52	0.161108017E 00	0.309823104E-02	1.19
ERROR		52	0.135428786E 00	0.260439957E-02	
ADJUSTED TOTAL		161	0.183365625D 01		
CORRECTION TERM		1	0.154161320D 04		
UNADJUSTED TOTAL		162	0.1543446860 04		

Effect	Degrees of Freedom	Mean Squares[d] X10000		F- Value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	503.536	5758.43	17.67*	1.50
T	2	181.725	2078.20	6.38*	3.00
C	1	284.048	3248.38	9.96*	3.84
TxD	52	30.982	354.31	1.09	1.36
TxC	2	74.117	847.60	2.60	3.00
DxC	26	57.059	652.53	2.00*	1.50
TxDxC	52	26.044	297.84	0.91	1.36
Error	1806	—	325.98[c]	1.00	1.00

a. Mean of an average of 11.4360 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.181 log units or 51.5 per cent

d. Note that the mean squares are in log units

4/6/72

HC MASS
G/MILE

log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.216379277E-01	0.216379277E-01	15.54
T	54	2	0.151212811E-01	0.756064057E-02	5.43
CxT	27	2	0.127055123E-01	0.635275617E-02	4.56
D	6	26	0.109587383E 01	0.421489924E-01	30.28
CXD	3	26	0.111648560E 00	0.429417193E-02	3.08
TXD	2	52	0.990839005E-01	0.190545944E-02	1.37
ERROR		52	0.723910928E-01	0.139213633E-02	
ADJUSTED TOTAL		161	0.142846214D 01		
CORRECTION TERM		1	0.479947000D 02		
UNADJUSTED TOTAL		162	0.494231622D 02		

Effect	Degrees of Freedom	Mean Squares[d] x 10000		F- Value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	421.490	4911.53	20.06*	1.50
T	2	75.606	881.03	3.60*	3.00
C	1	216.379	2521.42	10.30*	3.84
TxD	52	19.055	222.04	0.91	1.36
TxC	2	63.528	740.27	3.02*	3.00
DxC	26	42.942	500.39	2.04*	1.50
TxDxC	52	13.921	162.22	0.66	1.36
Error	1864	—	244.90[c]	1.00	1.00

a. Mean of an average of 11.6528 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.156 log units or 43.4 per cent

d. Note that the mean squares are in log units

4/6/72 Co MASS log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.435142368E-01	0.435142368E-01	17.02
T	54	2	0.285508037E-01	0.142754018E-01	5.58
CXT	27	2	0.153528601E-01	0.767643005E-02	3.00
D	6	26	0.326572037E 01	0.125604630E 00	49.13
CxD	3	26	0.271715164E 00	0.104505830E-01	4.09
TXD	2	52	0.158602715E 00	0.305005210E-02	1.19
ERROR		52	0.132931948E 00	0.255638361E-02	
ADJUSTED TOTAL		161	0.3916388130 01		
CORRECTION TERM		1	0.4116515630 03		
UNADJUSTED TOTAL		162	0.4155679510 03		

Effect	Degrees of freedom	Mean Squares[d] ×10000		F-value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	1256.046	14663.75	3476*	1.50
T	2	142.754	1666.59	3.98*	3.00
C	1	435.142	5080.08	12.04*	3.84
TxD	52	30.501	356.08	0.84	1.36
TxC	2	76.764	896.19	2.12	3.00
DxC	26	104.506	1220.06	2.89*	1.50
TxDxC	52	25.564	298.45	0.71	1.36
Error	1867	—	421.86[c]	1.00	1.00

a. Mean of an average of 11.6745 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.205 log units or 60.5 per cent

d. Note that the mean squares are in log units

4/6/72 NOX MASS g/MILE log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.408707738E 00	0.408707738E 00	189.36
T	54	2	0.107174337E 00	0.535871685E-01	24.83
CXT	27	2	0.112010121E 00	0.560050607E-01	25.95
D	6	26	0.180634785E 01	0.694748759E-01	32.19
CXD	3	26	0.137887955E 00	0.530338287E-02	2.46
TXD	2	52	0.164216042E 00	0.315800076E-02	1.46
ERROR		52	0.112235844E 00	0.215838151E-02	
ADJUSTED TOTAL		161	0.2848579900 01		
CORRECTION TERM		1	0.6899758250 02		
UNADJUSTED TOTAL		162	0.7184616240 02		

Effect	Degrees of Freedom	Mean Squares[d] x 10000		F-Value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	694.749	7945.18	22.97[c]	1.50
T	2	535.872	6128.23	17.72[c]	3.00
C	1	4087.077	46739.82	135.16[c]	3.84
TxD	52	31.580	361.15	1.04	1.36
TxC	2	560.051	6404.74	18.52[c]	3.00
DxC	26	53.034	606.49	1.75[c]	1.50
TxDxC	52	21.584	246.83	0.71	1.36
Error	1806	—	345.82[c]	1.00	1.00

a. Mean of an average of 11.4360 values in each subclass

b. One-sided 5% points in F-table

c. Car-to-car standard error of 0.186 log units or 53.4 percent

d. Note that the mean squares are in log units

4/6/72 NOX_c MASS log transform

SOURCE OF VARIATION	COUNT	DF	SS	MS	F
C	81	1	0.390889645E-01	0.390889645E-01	15.08
T	54	2	0.331707075E-01	0.165853538E-01	6.40
CXT	27	2	0.160331652E-01	0.801658258E-02	3.09
D	6	26	0.1805139 54E 01	0.694284439E-01	26.79
CXD	3	26	0.156664848E 00	0.602556765E-02	2.32
TXD	2	52	0.1670026 78E 00	0.321158976E-02	1.24
ERROR		52	0.1347732 54E 00	0.259179319E-02	
ADJUSTED TOTAL		161	0.2351873 21D 01		
CORRECTION TERM		1	0.6815396 22D 02		
UNADJUSTED TOTAL		162	0.7050583 54D 02		

Effect	Degrees of Freedom	Mean Squares[d] x10000		F- Value	
		Mean Basis[a]	Individual Basis	Calcd.	Tables[b]
D	26	694.284	7989.84	22.90*	1.50
T	2	165.854	1896.70	5.47*	3.00
C	1	390.890	4470.21	12.89*	3.84
TxD	52	32.116	367.28	1.06	1.36
TxC	2	80.166	916.78	2.64	3.00
DxC	26	60.256	689.08	1.99*	1.50
TxDxC	52	25.918	296.40	0.85	1.36
Error	1806	—	346.74[c]	1.00	1.00

a. Mean of an average of 11.4360 values in each subclass
b. One-sided 5% points in F-table
c. Car-to-car standard error of 0.186 log units or 53.5 percent
d. Note that the mean squares are in log units

APPENDIX F

MILEAGE ACCUMULATION TABLES

1. Legend and Interpretation of Tables.
2. Tables:

F-1	Kansas City	By Class
F-2	Kansas City	All Cars
F-3	Houston	By Class
F-4	Houston	All Cars

LEGEND AND INTERPRETATION OF MILEAGE ACCUMULATION TABLES

Key Words	Description
(CITY & CLASS)	Gives City and displacement class for each table. See accompanying table for description of displacement classes.
CAR	Listing of only those cars in each displacement class that completed all three phases of testing.
DELTA DAYS	Number of days between Phase I test and Phase III test.
DELTA MILEAGE	Difference between Phase III odometer and Phase I odometer.
MILEAGE PER DAY	DELTA MILEAGE/DELTA DAYS
MILEAGE PER YEAR	(DELTA MILEAGE/DELTA DAYS) x 365

TABLE OF DISPLACEMENT CLASS CODES

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL
1	A01	American Motors	232	A & M	6	1
2	C11	Dodge, Plym	225	A & M	6	1
3	C12	Dodge, Plym	318	A & M	8	2
4	C13	Chry, Plym	383	A Only	8	2
5	C14	Dodge, Chry, Plym	440	A Only	8	4
6	F31	Ford	200	A & M	6	1
7	F32	Ford (1970 Maverick)	200	A & M	6	1
8	F33	Ford, Merc	302	A & M	8	2
9	F34	Ford, Merc 1969 only	351	A & M	8	2
10	F35	Ford, Merc	390	A Only	8	2
11	F36	Ford, Merc	429	A Only	8	4
12	G51	Chev	230	A Only	6	1
13	G52	Chev	250	A Only	6	1
14	G53	Chev	307	A Only	8	2
15	G54	Chev 1968 Only	327	A Only	8	4
16	G55	Chev	350	A Only	8	4
17	G56	Chev	396	A Only	8	4
18	G61	Pont	350	A Only	8	2
19	G62	Pont	400	A Only	8	2
20	G63	Pont	428	A Only	8	4
21	G66	Olds	350	A Only	8	2
22	G67	Olds	455	A Only	8	4
23	G71	Buick	350	A Only	8	4
24	G72	Buick	430	A Only	8	4
25	G76	Cadillac	472	A Only	8	4
26	V81	Volkswagen	91	A & M	4	1
27	V82	Volkswagen	97	A & M	4	FI*

* Fuel Injection

TABLE F-1

Kansas City

By Class

KANSAS CITY - A01

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100150	675	7547.0	11.18	4080.97
100210	432	10217.0	23.65	8632.41
100238	314	16407.0	52.25	19071.83
100250	592	11960.0	20.20	7373.98
100401	265	14575.0	55.00	20075.00
100403	593	6791.0	11.45	4179.96
100406	265	10440.0	39.40	14379.62
100417	261	9937.0	38.07	13896.56
100435	611	16197.0	26.51	9675.78

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 277.72

AVERAGE MILEAGE PER DAY = 30.86

AVERAGE MILEAGE PER YEAR = 11262.89

SUMMATION OF (DELTA MILEAGE)**2 = 0.1302204E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1083077E 11

STANDARD DEVIATION OF DELTA MILEAGE = 3513.98

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1068319E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.7712575E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 16.25

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - C11

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100052	457	19774.0	43.27	15793.23
100169	448	18455.0	41.19	15035.88
100224	413	8931.0	21.62	7893.01
100248	375	12572.0	33.53	12236.74
100263	273	16931.0	62.02	22636.68
100274	608	24198.0	39.80	14526.75
100284	264	17278.0	65.45	23888.14
100286	263	9434.0	35.87	13092.81
100326	257	14421.0	56.11	20481.18
100358	312	8313.0	26.64	9725.14

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 425.51

AVERAGE MILEAGE PER DAY = 42.55

AVERAGE MILEAGE PER YEAR = 15530.95

SUMMATION OF (DELTA MILEAGE)**2 = 0.2506218E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2259219E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5238.73

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2001957E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1810548E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 14.58

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - C12

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100012	466	22241.0	47.73	17420.52
100036	365	13188.0	36.13	13188.00
100051	474	26577.0	56.07	20465.41
100059	384	14384.0	37.46	13672.29
100120	669	46845.0	70.02	25558.18
100128	448	11703.0	26.12	9534.80
100162	362	18616.0	51.43	18770.27
100170	371	15238.0	41.07	14991.56
100520	300	18199.0	60.66	22142.11

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 426.69

AVERAGE MILEAGE PER DAY = 47.41

AVERAGE MILEAGE PER YEAR = 17304.78

SUMMATION OF (DELTA MILEAGE)**2 = 0.4823187E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.3496563E 11

STANDARD DEVIATION OF DELTA MILEAGE = 10828.88

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2172743E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1820672E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 13.68

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - C13

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100033	265	13148.0	49.62	18109.50
100085	376	18512.0	49.23	17970.42
100090	371	18011.0	48.55	17719.71
100099	354	16959.0	47.91	17485.97
100117	385	29922.0	77.72	28367.61
100133	451	15467.0	34.29	12517.63
100167	436	12780.0	29.31	10698.85
100174	437	13996.0	32.03	11690.02
100222	654	53299.0	81.50	29746.38

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 450.15

AVERAGE MILEAGE PER DAY = 50.02

AVERAGE MILEAGE PER YEAR = 18256.20

SUMMATION OF (DELTA MILEAGE)**2 = 0.5462118E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.3690010E 11

STANDARD DEVIATION OF DELTA MILEAGE = 13048.50

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2528066E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.2026378E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 18.59

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - C14

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100101	691	23431.0	33.91	12376.71
100197	621	13752.0	22.14	8082.89
100226	323	15670.0	48.51	17707.58
100266	286	14456.0	50.55	18449.08
100277	269	23026.0	85.60	31243.45
100306	259	13724.0	52.99	19340.77
100321	365	13607.0	37.28	13607.00
100342	290	15087.0	52.02	18988.80
100441	359	14233.0	39.65	14470.87

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 422.65

AVERAGE MILEAGE PER DAY = 46.96

AVERAGE MILEAGE PER YEAR = 17140.77

SUMMATION OF (DELTA MILEAGE)**2 = 0.2526544E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2160488E 11

STANDARD DEVIATION OF DELTA MILEAGE = 3968.66

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2235160E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1786323E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 17.69

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - F31

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100142	379	22826.0	60.23	21982.82
100187	333	8258.0	24.80	9051.56
100213	363	15462.0	42.60	15547.18
100255	402	6814.0	16.95	6186.84
100292	271	24893.0	91.86	33527.47
100328	273	13412.0	49.13	17931.79
100364	601	16392.0	27.27	9955.20
100381	375	24476.0	65.27	23823.30
100433	259	9010.0	34.79	12697.49

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 412.89

AVERAGE MILEAGE PER DAY = 45.88

AVERAGE MILEAGE PER YEAR = 16744.84

SUMMATION OF (DELTA MILEAGE)**2 = 0.2623219E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2003442E 11

STANDARD DEVIATION OF DELTA MILEAGE = 7046.03

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2340918E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1704752E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 23.63

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - F32

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100338	568	24021.0	42.29	15436.02
100382	595	27397.0	46.05	16806.55
100387	278	12287.0	44.20	16132.21
100388	398	19723.0	49.56	18087.67
100398	298	16577.0	55.63	20304.04
100405	437	14165.0	32.41	11831.18
100414	269	13750.0	51.12	18657.06
100429	360	13033.0	36.20	13214.01
100432	377	10104.0	26.80	9782.38
100444	292	16308.0	55.85	20384.99
100446	385	20578.0	53.45	19509.01
100447	374	14638.0	39.14	14285.74
100508	322	16301.0	50.62	18477.84

NUMBER OF CARS = 13

TOTAL MILEAGE PER DAY = 583.31

AVERAGE MILEAGE PER DAY = 44.87

AVERAGE MILEAGE PER YEAR = 16377.57

SUMMATION OF (DELTA MILEAGE)**2 = 0.3973425E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.4790933E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4899.76

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2717527E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.3402514E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 9.14

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - F33

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100017	394	12179.0	30.91	11282.57
100037	367	20330.0	55.40	20219.20
100058	446	18291.0	41.01	14969.09
100065	383	12990.0	33.92	12379.50
100071	364	21815.0	59.93	21874.93
100088	482	12245.0	25.40	9272.66
100147	349	22526.0	64.54	23558.71
100155	371	16010.0	43.15	15751.07
100204	365	27136.0	74.35	27136.00
100223	409	28278.0	69.14	25235.86
100519	288	9709.0	33.71	12304.80

NUMBER OF CARS = 11

TOTAL MILEAGE PER DAY = 531.46

AVERAGE MILEAGE PER DAY = 48.31

AVERAGE MILEAGE PER YEAR = 17634.92

SUMMATION OF (DELTA MILEAGE)**2 = 0.4084784E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.4060588E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6271.69

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2856566E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.2824533E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 16.99

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - F34

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100152	351	11229.0	31.99	11676.88
100156	351	31464.0	89.64	32718.97
100251	290	22820.0	78.69	28721.72
100339	406	20099.0	49.50	18069.29
100361	608	19344.0	31.82	11612.76
100393	295	10085.0	34.19	12478.05
100427	314	11530.0	36.72	13402.70
100439	275	11185.0	40.67	14845.54
100442	284	14065.0	49.52	18076.49
100453	384	8636.0	22.49	8208.70

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 465.24

AVERAGE MILEAGE PER DAY = 46.52

AVERAGE MILEAGE PER YEAR = 16981.07

SUMMATION OF (DELTA MILEAGE)**2 = 0.3047142E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2574645E 11

STANDARD DEVIATION OF DELTA MILEAGE = 7245.67

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2584378E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.2164437E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 21.60

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - F35

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100043	386	11711.0	30.34	11073.87
100049	649	12190.0	18.78	6855.70
100069	447	24357.0	54.49	19888.82
100081	363	19555.0	53.87	19662.73
100102	450	15448.0	34.33	12530.04
100119	479	23448.0	48.95	17867.47
100127	356	18179.0	51.06	18638.58
100305	307	12897.0	42.01	15333.56
100308	262	14325.0	54.68	19956.58

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 388.51

AVERAGE MILEAGE PER DAY = 43.17

AVERAGE MILEAGE PER YEAR = 15756.36

SUMMATION OF (DELTA MILEAGE)**2 = 0.2751868E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2313745E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4757.10

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1808104E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1509424E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 12.79

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - F36

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100020	710	24462.0	34.45	12575.53
100352	602	11508.0	19.12	6977.44
100384	595	10538.0	17.71	6464.48
100415	301	13178.0	43.78	15979.96
100416	598	14553.0	24.34	8882.68
100425	588	19139.0	32.55	11880.50
100426	595	30374.0	51.05	18632.79
100428	594	13498.0	22.72	8294.22
100450	298	10865.0	36.46	13307.79

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 282.19

AVERAGE MILEAGE PER DAY = 31.35

AVERAGE MILEAGE PER YEAR = 11443.92

SUMMATION OF (DELTA MILEAGE)**2 = 0.2816446E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2193805E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6881.91

SUMMATION OF (MILEAGE PER DAY)**2 = 0.9886262E 04

(SUMMATION OF MILEAGE PER DAY)**2 = 0.7962494E 03

STANDARD DEVIATION OF MILEAGE PER DAY = 11.40

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - 651

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100257	281	14049.0	50.00	18248.70
100278	267	10503.0	39.34	14358.03
100337	429	13404.0	31.24	11404.33
100370	409	19249.0	47.06	17178.20
100422	266	9666.0	36.34	13263.49
100434	263	18052.0	68.64	25053.15
100436	602	28430.0	47.23	17237.45
100443	409	20236.0	49.48	18059.02
100452	344	16244.0	47.22	17235.63

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 416.54

AVERAGE MILEAGE PER DAY = 46.28

AVERAGE MILEAGE PER YEAR = 16893.09

SUMMATION OF (DELTA MILEAGE)**2 = 0.2758812E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2244993E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5748.65

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2017806E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1735072E 04

STANDARD DEVIATION OF MILEAGE PER DAY = 10.60

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - 652

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100319	NO MATCH IN PHASE I			
100344	304	10181.0	33.49	12223.89
100362	285	18830.0	66.07	24115.61
100372	378	8294.0	21.94	8008.75
100377	358	9775.0	27.30	9966.13
100385	427	15690.0	36.74	13411.82
100390	395	11034.0	27.93	10195.97
100410	416	9031.0	21.71	7923.83
100413	403	25180.0	62.48	22805.70
100419	290	14972.0	51.63	18844.06
100420	297	5664.0	19.07	6960.80
100455	353	8756.0	24.80	9053.65

NUMBER OF CARS = 11

TOTAL MILEAGE PER DAY = 393.18

AVERAGE MILEAGE PER DAY = 35.74

AVERAGE MILEAGE PER YEAR = 13046.36

SUMMATION OF (DELTA MILEAGE)**2 = 0.2038987E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1888068E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5679.45

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1686388E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1545891E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 16.76

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - 653

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100009	519	17991.0	34.66	12652.63
100013	515	24780.0	48.12	17562.52
100028	463	18044.0	38.97	14224.75
100129	510	19773.0	38.77	14151.26
100145	381	11156.0	29.28	10687.50
100237	367	9635.0	26.25	9582.49
100243	450	22987.0	51.08	18645.01
100311	292	12012.0	41.14	15015.00
100357	328	14221.0	43.36	15825.20
100437	301	3774.0	12.54	4576.44

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 364.17

AVERAGE MILEAGE PER DAY = 36.42

AVERAGE MILEAGE PER YEAR = 13292.27

SUMMATION OF (DELTA MILEAGE)**2 = 0.2760740E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2383102E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6477.64

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1442405E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1326211E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 11.36

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - 654

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100041	468	14617.0	31.23	11400.00
100054	477	14918.0	31.27	11415.24
100063	411	14076.0	34.25	12500.58
100068	480	11532.0	24.02	8769.12
100087	378	13424.0	35.51	12962.32
100148	462	11951.0	25.87	9441.80
100172	658	13284.0	20.19	7368.78
100198	365	31290.0	85.73	31289.99
100211	484	15742.0	32.52	11871.54

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 320.60

AVERAGE MILEAGE PER DAY = 35.62

AVERAGE MILEAGE PER YEAR = 13002.14

SUMMATION OF (DELTA MILEAGE)**2 = 0.2493693E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1983421E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6019.67

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1444845E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1027849E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 19.45

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - 655

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100008	478	24716.0	51.71	18873.09
100053	681	17409.0	25.56	9330.81
100062	391	11815.0	30.22	11029.34
100131	378	21381.0	56.56	20645.67
100215	423	12501.0	29.55	10786.91
100216	420	10385.0	24.73	9025.05
100235	348	22739.0	65.34	23849.81
100280	297	14349.0	48.31	17634.29
100318	342	10478.0	30.64	11182.66

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 362.62

AVERAGE MILEAGE PER DAY = 40.29

AVERAGE MILEAGE PER YEAR = 14706.39

SUMMATION OF (DELTA MILEAGE)**2 = 0.2607562E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2124977E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5550.64

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1646679E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1314956E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 15.23

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - 656

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100296	596	16244.0	27.26	9948.08
100336	401	14361.0	35.81	13071.73
100346	373	10646.0	28.54	10417.66
100350	376	14510.0	38.59	14085.50
100389	294	13475.0	45.83	16729.16
100391	365	15981.0	43.78	15981.00
100400	418	13346.0	31.93	11653.80

NUMBER OF CARS = 7

TOTAL MILEAGE PER DAY = 251.75

AVERAGE MILEAGE PER DAY = 35.96

AVERAGE MILEAGE PER YEAR = 13126.70

SUMMATION OF (DELTA MILEAGE)**2 = 0.1409066E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.9714663E 10

STANDARD DEVIATION OF DELTA MILEAGE = 1882.24

SUMMATION OF (MILEAGE PER DAY)**2 = 0.9366340E 04

(SUMMATION OF MILEAGE PER DAY)**2 = 0.6337557E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 7.22

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G61

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100125	508	11478.0	22.59	8246.98
100218	352	10416.0	29.59	10800.68
100240	471	18335.0	38.93	14208.65
100267	300	14373.0	47.91	17487.14
100272	419	14600.0	34.84	12718.38
100273	374	16469.0	44.03	16072.68
100279	591	12022.0	20.34	7424.75
100457	358	8632.0	24.11	8800.78
100502	332	17249.0	51.95	18963.51

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 314.31

AVERAGE MILEAGE PER DAY = 34.92

AVERAGE MILEAGE PER YEAR = 12747.05

SUMMATION OF (DELTA MILEAGE)**2 = 0.1783948E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1527053E 11

STANDARD DEVIATION OF DELTA MILEAGE = 3301.93

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1204455E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.9879125E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 11.55

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G62

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100023	523	24657.0	47.15	17208.04
100045	508	8636.0	17.00	6205.00
100193	457	10044.0	21.98	8022.01
100194	425	15764.0	37.09	13538.49
100214	355	13233.0	37.28	13605.75
100219	355	17321.0	48.79	17808.91
100242	638	18131.0	28.42	10372.75
100302	609	19221.0	31.56	11519.97
100515	296	13815.0	46.67	17035.38

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 315.93

AVERAGE MILEAGE PER DAY = 35.10

AVERAGE MILEAGE PER YEAR = 12812.91

SUMMATION OF (DELTA MILEAGE)**2 = 0.2396096E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1983083E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4907.52

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1212266E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.9981475E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 11.36

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G63

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100031	407	14652.0	36.00	13140.00
100134	497	18312.0	36.85	13448.45
100209	483	15690.0	32.48	11856.83
100290	558	17950.0	32.17	11741.48
100335	416	27021.0	64.95	23708.32
100380	303	9922.0	32.75	11952.24
100392	303	21789.0	71.91	26247.47
100527	251	8410.0	33.51	12229.68

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 340.61

AVERAGE MILEAGE PER DAY = 42.58

AVERAGE MILEAGE PER YEAR = 15540.55

SUMMATION OF (DELTA MILEAGE)**2 = 0.2492457E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1788799E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6052.85

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1632878E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1160184E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 16.15

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G66

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100021	693	12771.0	18.43	6726.42
100094	390	28431.0	72.90	26608.50
100113	480	19805.0	41.26	15060.05
100123	675	9687.0	14.35	5238.15
100160	637	29772.0	46.74	17059.30
100175	466	13841.0	29.70	10841.12
100184	366	7824.0	21.38	7802.62
100236	413	13034.0	31.56	11519.15
100303	391	12957.0	33.14	12095.41
100369	409	13257.0	32.41	11830.81

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 341.87

AVERAGE MILEAGE PER DAY = 34.19

AVERAGE MILEAGE PER YEAR = 12478.14

SUMMATION OF (DELTA MILEAGE)**2 = 0.3110172E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2604318E 11

STANDARD DEVIATION OF DELTA MILEAGE = 7497.07

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1423071E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1168730E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 16.81

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G67

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100176	634	24698.0	38.96	14218.88
100287	585	24577.0	42.01	15334.36
100314	543	17680.0	32.56	11884.34
100343	311	21193.0	68.14	24872.81
100363	313	16559.0	52.90	19310.01
100366	616	35674.0	57.91	21138.00
100373	571	43188.0	75.64	27607.03
100379	560	17767.0	31.73	11580.27
100399	593	13778.0	23.23	8480.55

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 423.09

AVERAGE MILEAGE PER DAY = 47.01

AVERAGE MILEAGE PER YEAR = 17158.45

SUMMATION OF (DELTA MILEAGE)**2 = 0.5893276E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.4627403E 11

STANDARD DEVIATION OF DELTA MILEAGE = 9693.53

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2240626E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1790011E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 17.74

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G71

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100018	406	15961.0	39.31	14349.17
100042	710	14934.0	21.03	7677.34
100103	455	15625.0	34.34	12534.34
100185	655	13467.0	20.56	7504.51
100300	591	23633.0	39.99	14595.67
100304	6C2	16725.0	27.78	10140.57
100327	379	11347.0	29.94	10927.84

NUMBER OF CARS = 7

TOTAL MILEAGE PER DAY = 212.96

AVERAGE MILEAGE PER DAY = 30.42

AVERAGE MILEAGE PER YEAR = 11104.20

SUMMATION OF (DELTA MILEAGE)**2 = 0.1870276E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1247510E 11

STANDARD DEVIATION OF DELTA MILEAGE = 3832.30

SUMMATION OF (MILEAGE PER DAY)**2 = 0.6857191E 04

(SUMMATION OF MILEAGE PER DAY)**2 = 0.4535084E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 7.94

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G72

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100091	387	29861.0	77.16	28163.47
100098	496	28553.0	57.57	21011.78
100261	421	7827.0	18.59	6785.88
100262	385	22469.0	58.36	21301.78
100315	290	14252.0	49.14	17937.86
100317	290	13594.0	46.88	17109.68
100329	284	-70433.0	-248.00	17109.68
100331	276	17249.0	62.50	22811.17
100360	563	16247.0	28.86	10533.13

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 399.05

AVERAGE MILEAGE PER DAY = 49.88

AVERAGE MILEAGE PER YEAR = 18206.82

SUMMATION OF (DELTA MILEAGE)**2 = 0.3222479E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2251560E 11

STANDARD DEVIATION OF DELTA MILEAGE = 7634.78

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2237037E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1592438E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 18.77

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - G76

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100157	380	13045.0	34.33	12530.06
100189	658	31010.0	47.13	17201.59
100227	658	24973.0	37.95	13852.80
100340	394	21009.0	53.32	19462.65
100345	382	12189.0	31.91	11646.55
100397	557	29078.0	52.20	19054.70
100404	609	9574.0	15.72	5738.11
100411	351	30032.0	85.56	31229.86

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 358.13

AVERAGE MILEAGE PER DAY = 44.77

AVERAGE MILEAGE PER YEAR = 16339.52

SUMMATION OF (DELTA MILEAGE)**2 = C.4184504E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2921023E 11

STANDARD DEVIATION OF DELTA MILEAGE = 8727.84

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1899452E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1282546E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 20.57

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY - V81

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100006	536	17909.0	33.41	12195.49
100055	523	16098.0	30.78	11234.74
100109	690	11847.0	17.17	6266.89
100118	384	10696.0	27.85	10166.77
100126	452	10598.0	23.45	8558.12
100158	629	15284.0	24.30	8869.09
100164	365	22280.0	61.04	22280.00
100165	451	8550.0	18.96	6919.62
100181	467	11373.0	24.35	8888.96

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 261.31

AVERAGE MILEAGE PER DAY = 29.03

AVERAGE MILEAGE PER YEAR = 10597.73

SUMMATION OF (DELTA MILEAGE)**2 = 0.1879397E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1553388E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4379.07

SUMMATION OF (MILEAGE PER DAY)**2 = 0.8953125E 04

(SUMMATION OF MILEAGE PER DAY)**2 = 0.6828494E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 13.07

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

KANSAS CITY V82

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100200	332	10601.0	31.93	11654.71
100228	608	17877.0	29.40	10732.08
100229	318	22194.0	69.79	25474.24
100269	434	22082.0	50.88	18571.26
100270	607	12581.0	20.73	7565.18
100271	286	19553.0	68.37	24954.00
100283	287	16867.0	58.77	21451.06
100299	255	10752.0	42.16	15390.11
100301	353	8836.0	25.03	9136.37
100374	434	23045.0	53.10	19381.16

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 450.16

AVERAGE MILEAGE PER DAY = 45.02

AVERAGE MILEAGE PER YEAR = 16430.99

SUMMATION OF (DELTA MILEAGE)**2 = 0.2962006E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2702341E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5371.36

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2312537E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.2026479E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 17.83

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

TABLE F-2 - ALL CARS

KANSAS CITY

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
100150	675	7547.0	11.18	4080.97
100210	432	10217.0	23.65	8632.41
100238	314	16407.0	52.25	19071.83
100250	592	11960.0	20.20	7373.98
100401	265	14575.0	55.00	20075.00
100403	593	6791.0	11.45	4179.96
100406	265	10440.0	39.40	14379.62
100417	261	9937.0	38.07	13896.56
100435	611	16197.0	26.51	9675.78
100052	457	19774.0	43.27	15793.23
100169	448	18455.0	41.19	15035.88
100224	413	8931.0	21.62	7893.01
100248	375	12572.0	33.53	12236.74
100263	273	16931.0	62.02	22636.68
100274	608	24198.0	39.80	14526.75
100284	264	17278.0	65.45	23888.14
100286	263	9434.0	35.87	13092.81
100326	257	14421.0	56.11	20481.18
100358	312	8313.0	26.64	9725.14
100012	466	22241.0	47.73	17420.52
100036	365	13188.0	36.13	13188.00
100051	474	26577.0	56.07	20465.41
100059	384	14384.0	37.46	13672.29
100120	669	46845.0	70.02	25558.18
100128	448	11703.0	26.12	9534.80
100162	362	18616.0	51.43	18770.27
100170	371	15238.0	41.07	14991.56
100520	300	18199.0	60.66	22142.11
100033	265	13148.0	49.62	18109.50
100085	376	18512.0	49.23	17970.42
100090	371	18011.0	48.55	17719.71
100099	354	16959.0	47.91	17485.97
100117	385	29922.0	77.72	28367.61
100133	451	15467.0	34.29	12517.63
100167	436	12780.0	29.31	10698.85
100174	437	13996.0	32.03	11690.02
100222	654	53299.0	81.50	29746.38
100101	691	23431.0	33.91	12376.71
100197	621	13752.0	22.14	8082.89
100226	323	15670.0	48.51	17707.58
100266	286	14456.0	50.55	18449.08
100277	269	23026.0	85.60	31243.45
100306	259	13724.0	52.99	19340.77
100321	365	13607.0	37.28	13607.00
100342	290	15087.0	52.02	18988.80
100441	359	14233.0	39.65	14470.87
100142	379	22826.0	60.23	21982.82
100187	333	8258.0	24.80	9051.56
100213	363	15462.0	42.60	15547.18
100255	402	6814.0	16.95	6186.84
100292	271	24893.0	91.86	33527.47
100328	273	13412.0	49.13	17931.79
100364	601	16392.0	27.27	9955.20
100381	375	24476.0	65.27	23823.30
100433	259	9010.0	34.79	12697.49

TABLE F-2 (Cont'd)

100338	568	24021.0	42.29	15436.02
100382	595	27397.0	46.05	16806.55
100387	278	12287.0	44.20	16132.21
100388	398	19723.0	49.56	18087.67
100398	298	16577.0	55.63	20304.04
100405	437	14165.0	32.41	11831.18
100414	269	13750.0	51.12	18657.06
100429	360	13033.0	36.20	13214.01
100432	377	10104.0	26.80	9782.38
100444	292	16308.0	55.85	20384.99
100446	385	20578.0	53.45	19509.01
100447	374	14638.0	39.14	14285.74
100508	322	16301.0	50.62	18477.84
100017	394	12179.0	30.91	11282.57
100037	367	20330.0	55.40	20219.20
100058	446	18291.0	41.01	14969.09
100065	383	12990.0	33.92	12379.50
100071	364	21815.0	59.93	21874.93
100088	482	12245.0	25.40	9272.66
100147	349	22526.0	64.54	23558.71
100155	371	16010.0	43.15	15751.07
100204	365	27136.0	74.35	27136.00
100223	409	28278.0	69.14	25235.86
100519	288	9709.0	33.71	12304.80
100152	351	11229.0	31.99	11676.88
100156	351	31464.0	89.64	32718.97
100251	290	22820.0	78.69	28721.72
100339	406	20099.0	49.50	18069.29
100361	608	19344.0	31.82	11612.76
100393	295	10085.0	34.19	12478.05
100427	314	11530.0	36.72	13402.70
100439	275	11185.0	40.67	14845.54
100442	284	14065.0	49.52	18076.49
100453	384	8636.0	22.49	8208.70
100043	386	11711.0	30.34	11073.87
100049	649	12190.0	18.78	6855.70
100069	447	24357.0	54.49	19888.82
100081	363	19555.0	53.87	19662.73
100102	450	15448.0	34.33	12530.04
100119	479	23448.0	48.95	17867.47
100127	356	18179.0	51.06	18638.58
100305	307	12897.0	42.01	15333.56
100308	262	14325.0	54.68	19956.58
100020	710	24462.0	34.45	12575.53
100352	602	11508.0	19.12	6977.44
100384	595	10538.0	17.71	6464.48
100415	301	13178.0	43.78	15979.96
100416	598	14553.0	24.34	8882.68
100425	588	19139.0	32.55	11880.50
100426	595	30374.0	51.05	18632.79
100428	594	13498.0	22.72	8294.22
100450	298	10865.0	36.46	13307.79
100257	281	14049.0	50.00	18248.70
100278	267	10503.0	39.34	14358.03
100337	429	13404.0	31.24	11404.33
100370	409	19249.0	47.06	17178.20
100422	266	9666.0	36.34	13263.49
100434	263	18052.0	68.64	25053.15
100436	602	28430.0	47.23	17237.45
100443	409	20236.0	49.48	18059.02

TABLE F-2 (Cont'd)

100432	344	16244.0	47.22	17235.63
100319	NO PATCH IN PHASE I			
100344	304	10181.0	33.49	12223.89
100362	285	18830.0	66.07	24115.61
100372	378	8294.0	21.94	8008.75
100377	388	9775.0	27.30	9966.13
100385	427	15690.0	36.74	13411.82
100390	395	11034.0	27.93	10195.97
100410	414	9031.0	21.71	7923.83
100413	403	25180.0	62.48	22805.70
100419	290	14972.0	51.63	18844.06
100420	297	5664.0	19.07	6960.80
100455	353	8756.0	24.80	9053.65
100009	519	17991.0	34.66	12652.63
100013	515	24780.0	48.12	17562.52
100028	463	18044.0	38.97	14224.75
100129	510	19773.0	38.77	14151.24
100145	381	11156.0	29.28	10687.50
100237	367	9635.0	26.25	9582.49
100243	450	22987.0	51.08	18645.01
100311	292	12012.0	41.14	15015.00
100357	328	14221.0	43.36	15825.20
100437	301	3774.0	12.54	4576.44
100041	468	14617.0	31.23	11400.00
100054	477	14918.0	31.27	11415.24
100063	411	14076.0	34.25	12500.58
100068	480	11532.0	24.02	8769.12
100087	378	13424.0	35.51	12962.32
100148	462	11951.0	25.87	9441.80
100172	650	13284.0	20.19	7368.78
100198	365	31290.0	85.73	31289.99
100211	484	15742.0	32.52	11871.54
100008	478	24716.0	51.71	18873.09
100033	681	17409.0	25.56	9330.81
100062	391	11815.0	30.22	11029.34
100131	378	21381.0	56.56	20645.67
100215	423	12501.0	29.55	10786.91
100216	420	10385.0	24.73	9025.05
100238	348	22739.0	65.34	23849.81
100280	297	14349.0	48.31	17634.29
100318	342	10478.0	30.64	11182.66
100294	596	16244.0	27.26	9948.08
100336	401	14361.0	35.81	13071.73
100348	373	10646.0	28.54	10417.66
100350	376	14510.0	38.59	14085.50
100389	294	13475.0	45.83	16729.16
100391	365	15981.0	43.78	15981.00
100400	418	13346.0	31.93	11653.80
100125	508	11478.0	22.59	8246.98
100210	352	10416.0	29.59	10800.68
100240	471	18335.0	38.93	14208.65
100267	300	14373.0	47.91	17487.14
100272	419	14600.0	34.84	12718.38
100273	374	16469.0	44.03	16072.68
100279	591	12022.0	20.34	7424.75
100457	358	8632.0	24.11	8800.78
100502	332	17249.0	51.95	18963.51
100023	523	24657.0	47.15	17208.04
100045	500	8636.0	17.00	6205.00
100193	457	10044.0	21.98	8022.01

TABLE F-2 (Cont'd)

100194	425	15764.0	37.09	13538.49
100214	355	13233.0	37.28	13605.75
100219	355	17321.0	48.79	17808.91
100242	638	18131.0	28.42	10372.75
100302	609	19221.0	31.56	11519.97
100515	296	13815.0	46.67	17035.38
100031	407	14652.0	36.00	13140.00
100134	497	18312.0	36.85	13448.45
100209	483	15690.0	32.48	11856.83
100290	558	17950.0	32.17	11741.48
100335	416	27021.0	64.95	23708.32
100380	303	9922.0	32.75	11952.24
100392	303	21789.0	71.91	26247.47
100527	251	8410.0	33.51	12229.68
100021	693	12771.0	18.43	6726.42
100094	390	28431.0	72.90	26608.50
100113	480	19805.0	41.26	15060.05
100123	675	9687.0	14.35	5238.15
100160	637	29772.0	46.74	17059.30
100175	466	13841.0	29.70	10841.12
100184	366	7824.0	21.38	7802.62
100236	413	13034.0	31.56	11519.15
100303	391	12957.0	33.14	12095.41
100369	409	13257.0	32.41	11830.81
100176	634	24698.0	38.96	14218.88
100287	585	24577.0	42.01	15334.36
100314	543	17680.0	32.56	11884.34
100343	311	21193.0	68.14	24872.81
100363	313	16559.0	52.90	19310.01
100366	616	35674.0	57.91	21138.00
100373	571	43188.0	75.64	27607.03
100379	560	17767.0	31.73	11580.27
100399	593	13778.0	23.23	8480.55
100018	406	15961.0	39.31	14349.17
100042	710	14934.0	21.03	7677.34
100103	455	15625.0	34.34	12534.34
100185	655	13467.0	20.56	7504.51
100300	591	23633.0	39.99	14595.67
100304	602	16725.0	27.78	10140.57
100327	379	11347.0	29.94	10927.84
100091	387	29861.0	77.16	28163.47
100098	496	28553.0	57.57	21011.78
100261	421	7827.0	18.59	6785.88
100262	385	22469.0	58.36	21301.78
100315	290	14252.0	49.14	17937.86
100317	290	13594.0	46.88	17109.68
100329	284	-70433.0	-248.00	17109.68
100331	276	17249.0	62.50	22811.17
100340	563	16247.0	28.86	10533.13
100157	380	13049.0	34.33	12530.06
100189	658	31010.0	47.13	17201.59
100227	658	24973.0	37.95	13852.80
100340	394	21009.0	53.32	19462.65
100345	382	12189.0	31.91	11646.55
100397	557	29078.0	52.20	19054.70
100404	609	9574.0	15.72	5738.11
100411	391	30032.0	85.56	31229.86
100006	536	17909.0	33.41	12195.49
100055	523	16098.0	30.78	11234.74
100109	690	11847.0	17.17	6266.89

TABLE F-2 (Cont'd)

100118	384	10696.0	27.85	10166.77
100126	452	10598.0	23.45	8558.12
100158	629	15284.0	24.30	8869.09
100164	365	22280.0	61.04	22280.00
100165	451	8550.0	18.96	6919.62
100181	467	11373.0	24.35	8888.96
100200	332	10601.0	31.93	11654.71
100228	608	17877.0	29.40	10732.08
100229	318	22194.0	69.79	25474.24
100269	434	22082.0	50.88	18571.26
100270	607	12581.0	20.73	7565.18
100271	286	19553.0	68.37	24954.00
100283	287	16867.0	58.77	21451.06
100299	255	10752.0	42.16	15390.11
100301	353	8836.0	25.03	9136.37
100374	434	23045.0	53.10	19381.16

NUMBER OF CARS = 249

TOTAL MILEAGE PER DAY = 10192.31

AVERAGE MILEAGE PER DAY = 40.93

AVERAGE MILEAGE PER YEAR = 14940.53

SUMMATION OF (DELTA MILEAGE)**2 = C.7977920E 11

(SUMMATION OF DELTA MILEAGE)**2 = C.1702520E 14

STANDARD DEVIATION OF DELTA MILEAGE = 6781.40

SUMMATION OF (MILEAGE PER DAY)**2 = 0.4821983E 06

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1038832E 09

STANDARD DEVIATION OF MILEAGE PER DAY = 16.19

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

TABLE F-3

Houston

By Class

HOUSTON - A01

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200262	364	15043.0	41.33	15084.32
200271	367	15897.0	43.32	15810.36
200297	358	16799.0	46.92	17127.47
200314	450	11692.0	25.98	9483.50
200332	342	16032.0	46.88	17110.17
200347	384	20952.0	54.56	19915.31
200351	400	9311.0	23.28	8496.29
200356	392	12967.0	33.08	12073.86
200358	346	9542.0	27.58	10065.98
200373	340	17439.0	51.29	18721.27

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 394.21

AVERAGE MILEAGE PER DAY = 39.42

AVERAGE MILEAGE PER YEAR = 14388.82

SUMMATION OF (DELTA MILEAGE)**2 = 0.2243932E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2122091E 11

STANDARD DEVIATION OF DELTA MILEAGE = 3679.38

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1666311E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1554049E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 11.17

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - C11

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200056	523	10100.0	19.31	7048.75
200125	426	10605.0	24.89	9086.44
200181	364	7591.0	20.85	7611.85
200215	350	9154.0	26.15	9546.31
200234	348	15533.0	44.64	16291.79
200259	401	19672.0	49.06	17905.93
200284	399	29222.0	73.24	26731.90
200310	389	14796.0	38.04	13883.13
200317	450	7912.0	17.58	6417.51
200321	362	11813.0	32.63	11910.89

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 346.48

AVERAGE MILEAGE PER DAY = 34.64

AVERAGE MILEAGE PER YEAR = 12643.43

SUMMATION OF (DELTA MILEAGE)**2 = 0.2259149E-10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1860441E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6655.89

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1469509E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1199898E 04

STANDARD DEVIATION OF MILEAGE PER DAY = 17.31

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - C12

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200013	376	13210.0	35.13	12823.53
200015	426	12848.0	30.16	11008.26
200018	305	26626.0	87.30	31863.90
200025	474	12477.0	26.32	9607.81
200038	377	15281.0	40.53	14794.59
200073	358	16052.0	44.84	16365.86
200095	432	9257.0	21.43	7821.30
200099	401	25236.0	62.93	22970.42
200108	392	23388.0	59.66	21777.09
200110	431	22020.0	51.09	18648.02
200111	421	32410.0	76.98	28098.93
200169	425	24498.0	57.64	21039.46

NUMBER OF CARS = 12

TOTAL MILEAGE PER DAY = 594.02

AVERAGE MILEAGE PER DAY = 49.50

AVERAGE MILEAGE PER YEAR = 18068.24

SUMMATION OF (DELTA MILEAGE)**2 = 0.5100351E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.5443029E 11

STANDARD DEVIATION OF DELTA MILEAGE = 7163.64

SUMMATION OF (MILEAGE PER DAY)**2 = 0.3394989E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.3528650E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 20.33

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - C13

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200147	388	17319.0	44.64	16292.36
200158	387	19720.0	50.96	18598.96
200162	425	13915.0	32.74	11950.52
200194	385	23858.0	61.97	22618.62
200201	401	23987.0	59.82	21833.55
200204	406	18820.0	46.35	16919.45
200216	424	7930.0	18.70	6826.53
200217	419	26593.0	63.47	23165.73

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 378.65

AVERAGE MILEAGE PER DAY = 47.33

AVERAGE MILEAGE PER YEAR = 17275.70

SUMMATION OF (DELTA MILEAGE)**2 = 0.3151298E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2314718E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6069.82

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1960595E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1433724E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 15.51

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - C14

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200113	498	10194.0	20.47	7471.50
200127	430	19447.0	45.23	16507.33
200149	435	10136.0	23.30	8504.92
200180	402	13518.0	33.63	12273.80
200224	410	13426.0	32.75	11952.41
200246	375	9086.0	24.23	8843.70
200266	399	24024.0	60.21	21976.84
200285	417	17004.0	40.78	14883.59
200307	427	25486.0	59.69	21785.45
200316	396	7864.0	19.86	7248.38
200350	347	10775.0	31.05	11333.93

NUMBER OF CARS = 11

TOTAL MILEAGE PER DAY = 391.18

AVERAGE MILEAGE PER DAY = 35.56

AVERAGE MILEAGE PER YEAR = 12980.14

SUMMATION OF (DELTA MILEAGE)**2 = 0.2724158E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2590812E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6073.50

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1600653E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1530238E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 14.48

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - P31

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200028	440	14212.0	32.30	11789.49
200075	435	17699.0	40.69	14850.88
200193	422	10109.0	23.95	8743.56
200235	418	7146.0	17.10	6239.93
200293	428	16945.0	39.59	14450.75
200357	385	22045.0	57.26	20899.80
200370	406	7673.0	18.90	6898.13
200382	434	16746.0	38.59	14083.61
200386	380	18689.0	49.18	17951.27
200412	366	13411.0	33.87	12361.14

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 351.42

AVERAGE MILEAGE PER DAY = 35.14

AVERAGE MILEAGE PER YEAR = 12826.84

SUMMATION OF (DELTA MILEAGE)**2 = 0.2310044E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2093085E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4909.83

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1382271E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1234963E 04

STANDARD DEVIATION OF MILEAGE PER DAY = 12.79

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - F32

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200263	379	16625.0	43.87	16010.88
200276	458	28407.0	62.02	22638.77
200290	409	32973.0	80.62	29425.78
200322	399	11418.0	28.62	10445.03
200324	427	30743.0	72.00	26279.14
200327	418	22537.0	53.92	19679.43
200339	331	12745.0	38.50	14054.15
200375	369	13683.0	37.08	13534.67

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 416.62

AVERAGE MILEAGE PER DAY = 52.08

AVERAGE MILEAGE PER YEAR = 19008.47

SUMMATION OF (DELTA MILEAGE)**2 = 0.4103645E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2860529E 11

STANDARD DEVIATION OF DELTA MILEAGE = 8684.82

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2403764E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1735756E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 18.29

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - F33

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200001	362	16632.0	45.94	16769.83
200024	300	12383.0	41.28	15065.98
200029	315	17979.0	57.08	20832.80
200104	425	19668.0	46.28	16891.34
200121	487	26872.0	55.18	20140.20
200134	441	7284.0	16.52	6028.70
200211	412	24439.0	59.32	21651.05
200226	424	25403.0	59.91	21868.14

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 381.50

AVERAGE MILEAGE PER DAY = 47.69

AVERAGE MILEAGE PER YEAR = 17405.99

SUMMATION OF (DELTA MILEAGE)**2 = 0.3157774E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2269843E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6766.19

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1963963E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1455431E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 14.38

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - F34

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200057	446	22515.0	50.48	18425.95
200213	481	17080.0	35.51	12960.91
200231	404	11397.0	28.21	10296.79
200236	382	21227.0	55.57	20282.34
200249	417	15577.0	37.35	13634.54
200260	406	8536.0	21.02	7673.99
200287	457	13886.0	30.39	11090.57
200291	413	17635.0	42.70	15585.41
200308	396	7860.0	19.85	7244.69
200311	394	18228.0	46.26	16886.34

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 367.35

AVERAGE MILEAGE PER DAY = 36.73

AVERAGE MILEAGE PER YEAR = 13408.14

SUMMATION OF (DELTA MILEAGE)**2 = 0.2592488E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2369783E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4974.43

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1481123E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1349434E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 12.10

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - F35

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200061	408	22622.0	55.45	20237.82
200098	449	10866.0	24.20	8833.16
200139	441	13969.0	31.68	11561.64
200153	384	14458.0	37.65	13742.63
200170	449	26261.0	58.49	21348.03
200175	389	14537.0	37.37	13640.11
200190	422	17570.0	41.64	15196.80
200191	433	27671.0	63.91	23325.43
200195	426	17805.0	41.80	15255.45
200206	435	28437.0	65.37	23860.93

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 457.54

AVERAGE MILEAGE PER DAY = 45.75

AVERAGE MILEAGE PER YEAR = 16700.18

SUMMATION OF (DELTA MILEAGE)**2 = 0.4135025E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.3771208E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6357.99

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2273602E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.2093422E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 14.15

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - F36

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200060	402	19819.0	49.30	17994.86
200096	504	13948.0	27.67	10101.22
200101	397	19646.0	49.49	18062.44
200254	416	16823.0	40.44	14760.56
200394	386	15386.0	39.86	14548.93
200407	357	10379.0	29.07	10611.57
200414	421	11484.0	27.28	9956.43

NUMBER OF CARS = 7

TOTAL MILEAGE PER DAY = 263.11

AVERAGE MILEAGE PER DAY = 37.59

AVERAGE MILEAGE PER YEAR = 13719.42

SUMMATION OF (DELTA MILEAGE)**2 = 0.1732652E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1155302E 11

STANDARD DEVIATION OF DELTA MILEAGE = 3701.81

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1045886E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.6922806E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 9.74

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - GSI

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200268	418	12413.0	29.70	10839.10
200328	355	-15344.0	-43.22	10839.10
200374	386	7221.0	18.71	6828.14
200380	364	13410.0	36.84	13446.84
200398	341	12031.0	35.28	12877.75
200399	352	13590.0	38.61	14091.89
200400	378	13709.0	36.27	13237.52
200415	434	36585.0	84.30	30768.48
200416	434	29305.0	67.52	24645.91
200418	344	9157.0	26.62	9716.00

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 373.84

AVERAGE MILEAGE PER DAY = 41.54

AVERAGE MILEAGE PER YEAR = 15161.28

SUMMATION OF (DELTA MILEAGE)**2 = 0.3184518E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2173295E 11

STANDARD DEVIATION OF DELTA MILEAGE = 9809.09

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1901368E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1397562E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 20.87

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - G52

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200221	424	19174.0	45.22	16505.92
200280	425	12139.0	28.56	10425.25
200292	411	29324.0	71.35	26041.99
200320	406	8168.0	20.12	7343.15
200334	454	19946.0	43.93	16035.88
200338	479	19095.0	39.86	14550.46
200353	396	22439.0	56.66	20682.41
200362	421	22342.0	53.07	19370.14
200369	343	17355.0	50.60	18468.14
200391	392	6833.0	17.43	6362.36

NUMBER OF CARS = 10

TOTAL MILEAGE PER DAY = 426.81

AVERAGE MILEAGE PER DAY = 42.68

AVERAGE MILEAGE PER YEAR = 15578.55

SUMMATION OF (DELTA MILEAGE)**2 = 0.3554631E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.3126354E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6898.28

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2076652E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1821666E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 16.83

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTCN - G53

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200010	384	18420.0	47.97	17508.59
200030	380	12392.0	32.61	11902.84
200040	398	15248.0	38.31	13983.71
200079	325	21949.0	67.54	24650.41
200086	322	11136.0	34.58	12623.10
200106	379	12154.0	32.07	11705.03
200126	377	18432.0	48.89	17845.30
200148	373	11045.0	29.61	10808.11
200171	491	18904.0	38.50	14052.87

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 370.08

AVERAGE MILEAGE PER DAY = 41.12

AVERAGE MILEAGE PER YEAR = 15008.87

SUMMATION OF (DELTA MILEAGE)**2 = 0.2297940E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1951050E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4032.77

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1636717E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1369605E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 11.99

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - G54

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200009	422	17233.0	40.84	14905.32
200036	314	14511.0	46.21	16867.88
200092	373	9117.0	24.44	8921.46
200097	372	18469.0	49.65	18121.46
200125	376	8456.0	22.49	8208.61
200176	371	15483.0	41.73	15232.59
200207	362	21417.0	59.16	21594.48
200222	482	16521.0	34.28	12510.71
200256	356	13894.0	39.03	14245.25

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 357.83

AVERAGE MILEAGE PER DAY = 39.76

AVERAGE MILEAGE PER YEAR = 14511.96

SUMMATION OF (DELTA MILEAGE)**2 = 0.2167670E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1825228E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4177.89

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1531133E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1280418E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 11.64

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - 655

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200004	384	16562.0	43.13	15742.52
200005	383	20772.0	54.23	19795.77
200077	322	6200.0	19.25	7027.95
200078	323	19220.0	59.50	21719.19
200102	372	16702.0	44.90	16387.71
200140	421	18470.0	43.87	16013.18
200198	416	16436.0	39.51	14421.01
200253	412	6719.0	16.31	5952.51
200255	353	22856.0	64.75	23632.97
200278	362	12937.0	35.74	13044.21
200378	381	33520.0	87.98	32112.33

NUMBER OF CARS = 11

TOTAL MILEAGE PER DAY = 509.18

AVERAGE MILEAGE PER DAY = 46.29

AVERAGE MILEAGE PER YEAR = 16895.37

SUMMATION OF (DELTA MILEAGE)**2 = 0.3862361E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.3824987E 11

STANDARD DEVIATION OF DELTA MILEAGE = 7529.39

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2769045E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.2592599E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 20.30

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - G56

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200223	362	6881.0	19.01	6938.02
200283	357	10569.0	29.61	10805.84
200319	346	16364.0	47.29	17262.59
200333	335	18811.0	56.15	20495.57
200342	333	10768.0	32.34	11802.76
200344	339	20021.0	59.06	21556.53
200345	353	18695.0	52.96	19330.52
200354	350	10977.0	31.36	11447.44
200368	330	10865.0	32.92	12017.34

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 360.70

AVERAGE MILEAGE PER DAY = 40.08

AVERAGE MILEAGE PER YEAR = 14628.49

SUMMATION OF (DELTA MILEAGE)**2 = 0.1885521E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1536385E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4722.64

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1603366E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1301064E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 14.04

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - G61

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200008	389	14034.0	36.08	13168.14
200088	443	16223.0	36.62	13366.57
200115	432	6114.0	14.15	5165.76
200150	426	21648.0	50.82	18548.16
200168	435	9915.0	22.79	8319.48
200183	366	15996.0	43.70	15952.29
200187	368	11411.0	31.01	11317.97
200196	370	7666.0	20.72	7562.40

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 255.89

AVERAGE MILEAGE PER DAY = 31.99

AVERAGE MILEAGE PER YEAR = 11675.10

SUMMATION OF (DELTA MILEAGE)**2 = 0.1509313E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1061044E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5113.12

SUMMATION OF (MILEAGE PER DAY)**2 = 0.9245711E 04

(SUMMATION OF MILEAGE PER DAY)**2 = 0.6548102E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 12.31

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - G62

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200019	383	10531.0	27.50	10036.07
200058	321	14080.0	43.86	16009.96
200090	383	16332.0	42.64	15564.43
200094	386	17523.0	45.40	16569.67
200103	484	17897.0	36.98	13496.70
200117	369	25148.0	68.15	24875.39
200120	382	21335.0	55.85	20385.54
200144	483	20593.0	42.64	15561.99
200167	371	13354.0	35.99	13138.03
200197	452	20735.0	45.87	16743.96
200247	359	16282.0	45.35	16554.12

NUMBER OF CARS = 11

TOTAL MILEAGE PER DAY = 490.23

AVERAGE MILEAGE PER DAY = 44.57

AVERAGE MILEAGE PER YEAR = 16266.87

SUMMATION OF (DELTA MILEAGE)**2 = 0.3588288E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.3756231E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4165.72

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2296524E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.2403299E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 10.57

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - 663

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200174	390	17676.0	45.32	16542.92
200200	388	24368.0	62.80	22923.50
200227	368	30440.0	82.72	30191.84
200312	386	26900.0	69.69	25436.53
200367	348	17311.0	49.74	18156.65
200406	344	11380.0	33.08	12074.71
200408	327	10597.0	32.41	11828.45
200413	360	12622.0	35.06	12797.30
200417	420	13797.0	32.85	11990.25

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 443.68

AVERAGE MILEAGE PER DAY = 49.30

AVERAGE MILEAGE PER YEAR = 17993.54

SUMMATION OF (DELTA MILEAGE)**2 = 0.3447586E 10

(SUMMATION OF DELTA MILEAGE)**2 = C.2725504E 11

STANDARD DEVIATION OF DELTA MILEAGE = 7239.20

SUMMATION OF (MILEAGE PER DAY)**2 = 0.2462473E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1968488E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 18.55

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - 666

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200027	380	13848.0	36.44	13301.36
200041	330	23081.0	69.94	25528.98
200063	332	6588.0	19.84	7242.33
200082	276	7520.0	27.25	9944.92
200214	405	26224.0	64.75	23633.97
200225	376	16478.0	43.82	15995.93
200232	426	17370.0	40.77	14882.74
200244	427	8549.0	20.02	7307.69
200245	358	21089.0	58.91	21501.35
200272	416	6770.0	16.27	5940.02
200273	447	11547.0	25.83	9428.76

NUMBER OF CARS = 11

TOTAL MILEAGE PER DAY = 423.86

AVERAGE MILEAGE PER DAY = 38.53

AVERAGE MILEAGE PER YEAR = 14064.39

SUMMATION OF (DELTA MILEAGE)**2 = 0.2782387E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2530135E 11

STANDARD DEVIATION OF DELTA MILEAGE = 6944.52

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1993499E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1796559E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 18.98

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - 687

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200083	385	27990.0	72.70	26535.97
200145	381	18570.0	48.74	17790.15
200277	362	10471.0	28.93	10557.77
200305	356	13472.0	37.84	13812.58
200405	320	18409.0	57.53	20997.76
200420	430	19170.0	44.58	16272.21

NUMBER OF CARS = 6

TOTAL MILEAGE PER DAY = 290.32

AVERAGE MILEAGE PER DAY = 48.39

AVERAGE MILEAGE PER YEAR = 17661.66

SUMMATION OF (DELTA MILEAGE)**2 = 0.2125801E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1168172E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5980.77

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1522680E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.8428500E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 15.36

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - G71

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200053	461	25518.0	55.35	20204.05
200065	388	12786.0	32.95	12028.06
200132	379	12552.0	33.12	12088.34
200303	404	19500.0	48.27	17617.57
200318	348	20752.0	59.63	21765.74
200331	371	15093.0	40.68	14848.90
200349	375	9220.0	24.59	8974.13
200360	392	11514.0	29.37	10720.94
200379	375	17741.0	47.31	17267.90
200387	330	8558.0	25.93	9465.66
200390	329	12553.0	38.16	13926.58

NUMBER OF CARS = 11

TOTAL MILEAGE PER DAY = 435.36

AVERAGE MILEAGE PER DAY = 39.58

AVERAGE MILEAGE PER YEAR = 14446.14

SUMMATION OF (DELTA MILEAGE)**2 = 0.2774037E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.2748533E 11

STANDARD DEVIATION OF DELTA MILEAGE = 5247.58

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1862129E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1895411E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 11.79

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - 872

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200183	420	20414.0	48.60	17740.73
200184	374	8087.0	21.62	7892.39
200186	379	15096.0	39.83	14538.36
200192	409	7861.0	19.22	7015.32
200212	370	5443.0	14.71	5369.45
200252	365	16263.0	44.56	16262.99
200267	368	4994.0	13.57	4953.29
200288	393	8418.0	21.42	7818.24

NUMBER OF CARS = 8

TOTAL MILEAGE PER DAY = 223.94

AVERAGE MILEAGE PER DAY = 27.94

AVERAGE MILEAGE PER YEAR = 10198.84

SUMMATION OF (DELTA MILEAGE)**2 = 0.1161729E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.7495401E 10

STANDARD DEVIATION OF DELTA MILEAGE = 5667.00

SUMMATION OF (MILEAGE PER DAY)**2 = 0.7630527E 04

(SUMMATION OF MILEAGE PER DAY)**2 = 0.4996850E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 14.06

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - G76

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200142	408	9972.0	24.44	8921.02
200154	425	10548.0	24.82	9058.87
200289	441	4691.0	10.64	3882.57
200313	462	12780.0	27.66	10096.75
200325	420	21147.0	50.35	18377.75
200330	442	29385.0	66.48	24265.89
200340	420	13978.0	33.28	12147.54
200366	391	7847.0	20.07	7325.20
200381	405	24441.0	60.35	22027.07

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 318.09

AVERAGE MILEAGE PER DAY = 35.34

AVERAGE MILEAGE PER YEAR = 12900.29

SUMMATION OF (DELTA MILEAGE)**2 = 0.2561030E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1816807E 11

STANDARD DEVIATION OF DELTA MILEAGE = 8233.73

SUMMATION OF (MILEAGE PER DAY)**2 = 0.1419894E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1011808E 06

STANDARD DEVIATION OF MILEAGE PER DAY = 19.22

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - V81

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200016	381	12788.0	33.56	12250.97
200031	375	15574.0	41.53	15158.69
200046	381	16130.0	42.34	15452.62
200049	367	14542.0	39.62	14462.75
200066	338	24468.0	72.39	26422.54
200067	346	16731.0	48.36	17649.75
200089	433	13972.0	32.27	11777.78
200188	407	5866.0	14.41	5260.66
200421	382	16347.0	42.79	15619.51

NUMBER OF CARS = 9

TOTAL MILEAGE PER DAY = 367.27

AVERAGE MILEAGE PER DAY = 40.81

AVERAGE MILEAGE PER YEAR = 14895.00

SUMMATION OF (DELTA MILEAGE)**2 = C.2253189E 10

(SUMMATION OF DELTA MILEAGE)**2 = 0.1860987E 11

STANDARD DEVIATION OF DELTA MILEAGE = 4814.36

SUMMATION CF (MILEAGE PER DAY)**2 = 0.1687258E 05

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1348903E 04

STANDARD DEVIATION OF MILEAGE PER DAY = 15.35

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

HOUSTON - V82

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200152	388	20057.0	51.69	18868.05
200229	454	16788.0	36.98	13496.96
200240	376	3676.0	9.78	3568.46
200261	436	4745.0	10.88	3972.30
200299	425	8224.0	19.35	7062.96

NUMBER OF CARS = 5

TOTAL MILEAGE PER DAY = 128.68

AVERAGE MILEAGE PER DAY = 25.74

AVERAGE MILEAGE PER YEAR = 9393.74

SUMMATION OF (DELTA MILEAGE)**2 = 0.7877819E 09

(SUMMATION OF DELTA MILEAGE)**2 = 0.2861180E 10

STANDARD DEVIATION OF DELTA MILEAGE = 7340.74

SUMMATION OF (MILEAGE PER DAY)**2 = 0.4628027E 04

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1655891E 05

STANDARD DEVIATION OF MILEAGE PER DAY = 18.14

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

TABLE F-4 - ALL CARS

HOUSTON

CAR	DELTA DAYS	DELTA MILEAGE	MILEAGE PER DAY	MILEAGE PER YEAR
200262	364	15043.0	41.33	15084.32
200271	367	15897.0	43.32	15810.36
200297	358	16799.0	46.92	17127.47
200314	450	11692.0	25.98	9483.50
200332	342	16032.0	46.88	17110.17
200347	384	20952.0	54.56	19915.31
200351	400	9311.0	23.28	8496.29
200356	392	12967.0	33.08	12073.86
200358	346	9542.0	27.58	10065.98
200373	340	17439.0	51.29	18721.27
200056	523	10100.0	19.31	7048.75
200123	426	10605.0	24.89	9086.44
200181	364	7591.0	20.85	7611.85
200215	350	9154.0	26.15	9546.31
200234	348	15533.0	44.64	16291.79
200259	401	19672.0	49.06	17905.93
200284	399	29222.0	73.24	26731.90
200310	389	14796.0	38.04	13883.13
200317	450	7912.0	17.58	6417.51
200321	362	11813.0	32.63	11910.89
200013	376	13210.0	35.13	12823.53
200015	426	12848.0	30.16	11008.26
200018	305	26626.0	87.30	31863.90
200025	474	12477.0	26.32	9607.81
200038	377	15281.0	40.53	14794.59
200073	358	16052.0	44.84	16365.86
200095	432	9257.0	21.43	7821.30
200099	401	25236.0	62.93	22970.42
200108	392	23388.0	59.66	21777.09
200110	431	22020.0	51.09	18648.02
200111	421	32410.0	76.98	28098.93
200169	425	24498.0	57.64	21039.46
200147	388	17319.0	44.64	16292.36
200158	387	19720.0	50.96	18598.96
200162	425	13915.0	32.74	11950.52
200194	385	23858.0	61.97	22618.62
200201	401	23987.0	59.82	21833.55
200204	406	18820.0	46.35	16919.45
200216	424	7930.0	18.70	6826.53
200217	419	26593.0	63.47	23165.73
200113	498	10194.0	20.47	7471.50
200127	430	19447.0	45.23	16507.33
200149	435	10136.0	23.30	8504.92
200180	402	13518.0	33.63	12273.80
200224	410	13426.0	32.75	11952.41
200246	375	9086.0	24.23	8843.70
200266	399	24024.0	60.21	21976.84
200285	417	17004.0	40.78	14883.59
200307	427	25486.0	59.69	21785.45
200316	396	7864.0	19.86	7248.38
200350	347	10775.0	31.05	11333.93
200028	440	14212.0	32.30	11789.49
200075	435	17699.0	40.69	14850.88
200193	422	10109.0	23.95	8743.56
200235	418	7146.0	17.10	6239.9

TABLE F-4 (Cont'd)

200293	428	16945.0	39.59	14450.75
200357	385	22045.0	57.26	20899.80
200370	406	7673.0	18.90	6898.13
200382	434	16746.0	38.59	14083.61
200386	380	18689.0	49.18	17951.27
200412	396	13411.0	33.87	12361.14
200263	379	16625.0	43.87	16010.88
200276	458	28407.0	62.02	22638.77
200290	409	32973.0	80.62	29425.78
200322	399	11418.0	28.62	10445.03
200324	427	30743.0	72.00	26279.14
200327	418	22537.0	53.92	19679.43
200339	331	12745.0	38.50	14054.15
200375	369	13683.0	37.08	13534.67
200001	362	16632.0	45.94	16769.83
200024	300	12383.0	41.28	15065.98
200029	315	17979.0	57.08	20832.80
200104	425	19668.0	46.28	16891.34
200121	487	26872.0	55.18	20140.20
200134	441	7284.0	16.52	6028.70
200211	412	24439.0	59.32	21651.05
200226	424	25403.0	59.91	21868.14
200057	446	22515.0	50.48	18425.95
200213	481	17080.0	35.51	12960.91
200231	404	11397.0	28.21	10296.79
200236	382	21227.0	55.57	20282.34
200249	417	15577.0	37.35	13634.54
200260	406	8536.0	21.02	7673.99
200287	457	13886.0	30.39	11090.57
200291	413	17635.0	42.70	15585.41
200308	396	7860.0	19.85	7244.69
200311	394	18228.0	46.26	16886.34
200061	408	22622.0	55.45	20237.82
200098	449	10866.0	24.20	8833.16
200139	441	13969.0	31.68	11561.64
200153	384	14458.0	37.65	13742.63
200170	449	26261.0	58.49	21348.03
200175	389	14537.0	37.37	13640.11
200190	422	17570.0	41.64	15196.80
200191	433	27671.0	63.91	23325.43
200195	426	17805.0	41.80	15255.45
200206	435	28437.0	65.37	23860.93
200060	402	19819.0	49.30	17994.86
200096	504	13948.0	27.67	10101.22
200101	397	19646.0	49.49	18062.44
200254	416	16823.0	40.44	14760.56
200394	386	15386.0	39.86	14548.93
200407	357	10379.0	29.07	10611.57
200414	421	11484.0	27.28	9956.43
200268	418	12413.0	29.70	10839.10
200328	355	-15344.0	-43.22	10839.10
200374	386	7221.0	18.71	6828.14
200380	364	13410.0	36.84	13446.84
200398	341	12031.0	35.28	12877.75
200399	352	13590.0	38.61	14091.89
200400	378	13709.0	36.27	13237.52
200415	434	36585.0	84.30	30768.48
200416	434	29305.0	67.52	24645.91
200418	344	9157.0	26.62	9716.00
200221	424	19174.0	45.22	16505.92

TABLE F-4 (Cont'd)

200280	425	12139.0	28.56	10425.25
200292	411	29324.0	71.35	26041.99
200320	406	8168.0	20.12	7343.15
200334	454	19946.0	43.93	16035.88
200338	479	19095.0	39.86	14550.46
200353	396	22439.0	56.66	20682.41
200362	421	22342.0	53.07	19370.14
200369	343	17355.0	50.60	18468.14
200391	392	6833.0	17.43	6362.36
200010	384	18420.0	47.97	17508.59
200030	380	12392.0	32.61	11902.84
200040	398	15248.0	38.31	13983.71
200079	325	21949.0	67.54	24650.41
200086	322	11136.0	34.58	12623.10
200106	379	12154.0	32.07	11705.03
200126	377	18432.0	48.89	17845.30
200148	373	11045.0	29.61	10808.11
200171	491	18904.0	38.50	14052.87
200009	422	17233.0	40.84	14905.32
200036	314	14511.0	46.21	16867.88
200092	373	9117.0	24.44	8921.46
200097	372	18469.0	49.65	18121.46
200125	376	8456.0	22.49	8208.61
200176	371	15483.0	41.73	15232.59
200207	362	21417.0	59.16	21594.48
200222	482	16521.0	34.28	12510.71
200256	356	13894.0	39.03	14245.25
200004	384	16562.0	43.13	15742.52
200005	383	20772.0	54.23	19795.77
200077	322	6200.0	19.25	7027.95
200078	323	19220.0	59.50	21719.19
200102	372	16702.0	44.90	16387.71
200140	421	18470.0	43.87	16013.18
200198	416	16436.0	39.51	14421.01
200253	412	6719.0	16.31	5952.51
200295	353	22856.0	64.75	23632.97
200278	362	12937.0	35.74	13044.21
200378	381	33520.0	87.98	32112.33
200223	362	6881.0	19.01	6938.02
200283	357	10569.0	29.61	10805.84
200319	346	16364.0	47.29	17262.59
200333	335	18811.0	56.15	20495.57
200342	333	10768.0	32.34	11802.76
200344	339	20021.0	59.06	21556.53
200345	353	18695.0	52.96	19330.52
200354	350	10977.0	31.36	11447.44
200368	330	10865.0	32.92	12017.34
200008	389	14034.0	36.08	13168.14
200088	443	16223.0	36.62	13366.57
200115	432	6114.0	14.15	5165.76
200150	424	21648.0	50.82	18548.16
200168	435	9915.0	22.79	8319.48
200183	366	15996.0	43.70	15952.29
200187	368	11411.0	31.01	11317.97
200196	370	7666.0	20.72	7562.40
200019	383	10531.0	27.50	10036.07
200058	321	14080.0	43.86	16009.96
200090	383	16332.0	42.64	15564.43
200094	386	17523.0	45.40	16569.67
200103	404	17897.0	36.98	13496.70

TABLE F-4 (Cont'd)

200117	369	25148.0	68.15	24875.39
200120	382	21335.0	55.85	20385.54
200144	483	20593.0	42.64	15561.99
200167	371	13354.0	35.99	13138.03
200197	452	20735.0	45.87	16743.96
200247	359	16282.0	45.35	16554.12
200174	390	17676.0	45.32	16542.92
200200	388	24368.0	62.80	22923.50
200227	368	30440.0	82.72	30191.84
200312	386	26900.0	69.69	25436.53
200367	348	17311.0	49.74	18156.65
200406	344	11380.0	33.08	12074.71
200408	327	10597.0	32.41	11828.45
200413	360	12622.0	35.06	12797.30
200417	420	13797.0	32.85	11990.25
200027	380	13848.0	36.44	13301.36
200041	330	23081.0	69.94	25528.98
200063	332	6588.0	19.84	7242.83
200082	276	7520.0	27.25	9944.92
200214	405	26224.0	64.75	23633.97
200225	376	16478.0	43.82	15995.93
200232	426	17370.0	40.77	14882.74
200244	427	8549.0	20.02	7307.69
200245	358	21089.0	58.91	21501.35
200272	416	6770.0	16.27	5940.02
200273	447	11547.0	25.83	9428.76
200083	385	27990.0	72.70	26535.97
200145	381	18570.0	48.74	17790.15
200277	362	10471.0	28.93	10557.77
200305	356	13472.0	37.84	13812.58
200405	320	18409.0	57.53	20997.76
200420	430	19170.0	44.58	16272.21
200053	461	25518.0	55.35	20204.05
200065	388	12786.0	32.95	12028.06
200132	379	12552.0	33.12	12088.34
200303	404	19500.0	48.27	17617.57
200318	348	20752.0	59.63	21765.74
200331	371	15093.0	40.68	14848.90
200349	375	9220.0	24.59	8974.13
200360	392	11514.0	29.37	10720.94
200379	375	17741.0	47.31	17267.90
200387	330	8558.0	25.93	9465.66
200390	329	12553.0	38.16	13926.58
200133	420	20414.0	48.60	17740.73
200184	374	8087.0	21.62	7892.39
200186	379	15096.0	39.83	14538.36
200192	409	7861.0	19.22	7015.32
200212	370	5443.0	14.71	5369.45
200252	385	16263.0	44.56	16262.99
200267	368	4994.0	13.57	4953.29
200288	393	8418.0	21.42	7818.24
200142	408	9972.0	24.44	8921.02
200154	425	10548.0	24.82	9058.87
200289	441	4691.0	10.64	3882.57
200313	462	12780.0	27.66	10096.75
200325	420	21147.0	50.35	18377.75
200330	442	29385.0	66.48	24265.89
200340	420	13978.0	33.28	12147.54
200366	391	7847.0	20.07	7325.20
200381	405	24441.0	60.35	22027.07

TABLE F-4 (Cont'd)

200016	381	12788.0	33.56	12250.97
200031	375	15574.0	41.53	15158.69
200046	381	16130.0	42.34	15452.62
200049	367	14542.0	39.62	14462.75
200066	338	24468.0	72.39	26422.54
200067	346	16731.0	48.36	17649.75
200089	433	13972.0	32.27	11777.78
200188	407	5866.0	14.41	5260.66
200421	382	16347.0	42.79	15619.51
200152	388	20057.0	51.69	18868.05
200229	454	16788.0	36.98	13496.96
200240	376	3676.0	9.78	3568.46
200261	436	4745.0	10.88	3972.30
200299	425	8224.0	19.35	7062.96

NUMBER OF CARS = 248

TOTAL MILEAGE PER DAY = 10117.10

AVERAGE MILEAGE PER DAY = 40.79

AVERAGE MILEAGE PER YEAR = 14890.08

SUMMATION OF (DELTA MILEAGE)**2 = 0.7345347E 11

(SUMMATION OF DELTA MILEAGE)**2 = 0.1574535E 14

STANDARD DEVIATION OF DELTA MILEAGE = 6351.42

SUMMATION OF (MILEAGE PER DAY)**2 = 0.4755521E 06

(SUMMATION OF MILEAGE PER DAY)**2 = 0.1023557E 09

STANDARD DEVIATION OF MILEAGE PER DAY = 15.95

*****NOTE - CARS WITH NEGATIVE DELTA MILEAGE OR NO MATCH ARE NOT INCLUDED IN TOTALS

APPENDIX G

MILEAGE REGRESSIONS

G-1 UNWEIGHTED MILEAGE REGRESSIONS

G-1.1 Unweighted Mileage Regression Tables

Legend and Interpretation of Tables

Tables:

G-1	Kansas City	By Class	Composite
G-2	Houston	By Class	Composite
G-3	Combined Cities	By Class	Composite
G-4	Combined Classes	Kansas City	Composite
G-5	Combined Classes	Houston	Composite
G-6	Combined Classes and Cities		Composite
G-7	Kansas City	By Class	Mass
G-8	Houston	By Class	Mass
G-9	Combined Cities	By Class	Mass
G-10	Combined Classes	Kansas City	Mass
G-11	Combined Classes	Houston	Mass
G-12	Combined Classes and Cities		Mass

G-1.2 Data Plots for Selected Vehicle Classes

G-1.2.1 Data Plots - Class C11

G-1.2.2 Data Plots - Class G53

G-1.2.3 Data Plots - Class G54

G-1.2.4 Data Plots - Class G61

G-1.2.5 Data Plots - Class G71

G-1.2.6 Data Plots - Class G76

G-1.2.7 Data Plots - Class V81 & V82

G-2 WEIGHTED MILEAGE REGRESSION TALBES

Legend and Interpretation of Tables

Tables:

G-13	Composite	HC
G-14	Composite	CO
G-15	Composite	NO
G-16	Composite	NOC
G-17	Mass	HC
G-18	Mass	CO
G-19	Mass	NO
G-20	Mass	NOC

G-1

UNWEIGHTED MILEAGE REGRESSIONS

G-1.1

UNWEIGHTED MILEAGE REGRESSION

TABLES

LEGEND AND INTERPRETATION

OF UNWEIGHTED MILEAGE REGRESSION TABLES

Key Words	Description
CLASS	Code for each displacement class. See accompanying table for description of displacement classes.
VARIABLE	Emittant (Y); either hydrocarbons (HC), carbon monoxide (CO), oxides of nitrogen (NO), or oxides of nitrogen corrected for hymidity (NOC); and mileage (X1).
MEAN	Arithmetric average of variable for all cars tested in the displacement class.
STAN DEV	Standard Deviation of "variable" about the mean.
COEFF	The y-intercept (Y), and slope (X1) of the least squares straight line fit. (Note that the slope is per 1000 miles.)
STD ERR	Standard error of fit about the line.
R**2	Correlation coefficient squared (i.e. fraction of variability "explained by" mileage).
R	Correlation coefficient.
F	F-value for normal theory test of a significant slope.
DF	Degrees of freedom for F-test.

TABLE OF DISPLACEMENT CLASS CODES

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL
1	A01	American Motors	232	A & M	6	1
			225	A & M	6	1
2	C11	Dodge, Plym	318	A & M	8	2
3	C12	Dodge, Plym	383	A Only	8	2
4	C13	Chry, Plym	440	A Only	8	4
5	C14	Dodge, Chry, Plym				
			200	A & M	6	1
6	F31	Ford	200	A & M	6	1
7	F32	Ford (1970 Maverick)	302	A & M	8	2
8	F33	Ford, Merc	351	A & M	8	2
9	F34	Ford, Merc 1969 only	390	A Only	8	2
10	F35	Ford, Merc	429	A Only	8	4
11	F36	Ford, Merc				
			230	A Only	6	1
12	G51	Chev	250	A Only	6	1
13	G52	Chev	307	A Only	8	2
14	G53	Chev	327	A Only	8	4
15	G54	Chev 1968 Only	350	A Only	8	4
16	G55	Chev	396	A Only	8	4
17	G56	Chev				
			350	A Only	8	2
18	G61	Pont	400	A Only	8	2
19	G62	Pont	428	A Only	8	4
20	G63	Pont				
			350	A Only	8	2
21	G66	Olds	455	A Only	8	4
22	G67	Olds				
			350	A Only	8	4
23	G71	Buick	430	A Only	8	4
24	G72	Buick				
			472	A Only	8	4
25	G76	Cadillac				
			91	A & M	4	1
26	V81	Volkswagen	97	A & M	4	FI*
27	V82	Volkswagen				

* Fuel Injection

TABLE G-1

Kansas City

By Class

Composite

HC

CO

NO_x

NO_xC

DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE HC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	HC	360.7566	142.5838	281.75878	139.6367	0.06755	0.25991	2.54	1, 35
	X1	MILEAGE	21244.0811	9965.7694	3.71893					
C11	Y	HC	286.6484	109.9106	293.41623	111.3973	0.00130	-0.03604	0.05	1, 35
	X1	MILEAGE	24581.8919	14388.7696	-0.27531					
C12	Y	HC	301.5127	87.6455	259.80899	86.2092	0.05797	0.24076	2.28	1, 37
	X1	MILEAGE	30736.3077	15552.2859	1.35682					
C13	Y	HC	359.5127	319.8709	355.76657	324.1556	0.00006	0.00745	0.00	1, 37
	X1	MILEAGE	30169.1795	19239.0967	0.12417					
C14	Y	HC	376.8569	297.6409	240.35518	290.3820	0.07618	0.27600	2.72	1, 33
	X1	MILEAGE	26764.4000	16107.2622	5.10012					
F31	Y	HC	267.6313	58.9275	263.37424	59.7030	0.00125	0.03537	0.05	1, 36
	X1	MILEAGE	28535.3421	13969.5495	0.14919					
F32	Y	HC	280.5347	82.2132	263.87818	82.7677	0.01060	0.10294	0.44	1, 41
	X1	MILEAGE	16508.2558	8387.9351	1.00897					
F33	Y	HC	421.1394	400.4088	495.77089	403.4630	0.00886	-0.09413	0.37	1, 41
	X1	MILEAGE	28972.0000	14631.3926	-2.57599					
F34	Y	HC	308.0789	85.3563	260.81357	82.7127	0.08636	0.29387	3.40	1, 36
	X1	MILEAGE	20216.6579	10729.0642	2.33790					
F35	Y	HC	282.0930	81.9555	240.42547	80.7573	0.05214	0.22835	2.26	1, 41
	X1	MILEAGE	28495.6977	12798.6456	1.46223					
F36	Y	HC	283.0811	74.2138	257.98178	74.3698	0.02369	0.15391	0.85	1, 35
	X1	MILEAGE	25693.5946	11692.4940	0.97686					
G51	Y	HC	332.6111	243.2378	356.20682	246.5890	0.00162	-0.04024	0.06	1, 34
	X1	MILEAGE	27817.2222	11540.8944	-0.84825					
G52	Y	HC	226.0000	87.6842	227.24526	88.8283	0.00005	-0.00682	0.00	1, 38
	X1	MILEAGE	24404.1000	11718.8523	-0.05103					
G53	Y	HC	406.4634	147.9025	311.91854	145.2019	0.06028	0.24552	2.50	1, 39

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	X1	MILEAGE	26993.8780	10367.8901	9.50249						
694	Y	MC	392.4417	143.1536	398.85744	144.8636	0.00035	-0.01877	0.01	1.	41
	X1	MILEAGE	29313.1395	12277.6826	-0.21887						
695	Y	MC	312.1111	85.0794	328.23959	85.8936	0.00989	-0.09945	0.34	1.	34
	X1	MILEAGE	21928.3333	11188.8607	-0.75621						
696	Y	MC	290.3665	67.2245	317.98940	66.9794	0.04151	-0.20374	1.21	1.	28
	X1	MILEAGE	24820.4667	12306.8716	-1.11291						
661	Y	MC	246.0000	55.4180	300.72743	51.8993	0.14488	-0.38063	6.61	1.	39
	X1	MILEAGE	24676.4878	9511.1250	-2.21784						
662	Y	MC	235.3500	48.1539	242.43562	48.6176	0.00678	-0.08236	0.26	1.	38
	X1	MILEAGE	26157.8750	14441.0603	-0.27089						
668	Y	MC	305.1763	90.7238	323.58531	91.7692	0.00783	-0.08848	0.25	1.	32
	X1	MILEAGE	22936.4412	10001.6028	-0.80264						
666	Y	MC	259.6428	67.9307	248.74866	68.4316	0.00995	0.09975	0.40	1.	40
	X1	MILEAGE	21101.7857	13125.1078	0.51626						
667	Y	MC	246.6667	133.6800	152.57361	128.6811	0.09987	0.31601	3.77	1.	34
	X1	MILEAGE	29631.7500	13303.7610	3.17541						
671	Y	MC	290.7939	135.0054	123.98676	95.7444	0.51229	0.71575	33.61	1.	32
	X1	MILEAGE	30005.5000	17381.7995	5.55924						
672	Y	MC	257.2971	59.8813	241.08665	59.9985	0.02397	0.15482	0.86	1.	35
	X1	MILEAGE	33659.9189	19250.2929	0.48159						
676	Y	MC	183.8000	54.5300	164.52103	54.4827	0.03109	0.17633	1.06	1.	33
	X1	MILEAGE	30692.1714	15307.8228	0.62814						
V01	Y	MC	436.0952	198.8815	237.99692	169.9914	0.28724	0.53595	16.12	1.	40
	X1	MILEAGE	24270.8571	13059.3965	8.16199						
V02	Y	MC	330.8203	221.1508	189.54147	211.1422	0.11245	0.33534	4.69	1.	37
	X1	MILEAGE	28165.2051	14784.6234	5.01607						

DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE CO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y CO	1.8197	1.0772	0.86893	0.9944	0.17146	0.41408	7.24	1, 35
	X1 MILEAGE	21244.0811	9965.7694	0.04476					
C11	Y CO	1.6727	0.6879	1.79209	0.6941	0.01092	-0.10158	0.36	1, 35
	X1 MILEAGE	24581.8919	14388.7696	-0.00486					
C12	Y CO	1.8774	0.5624	1.58415	0.5497	0.06963	0.26388	2.77	1, 37
	X1 MILEAGE	30736.3077	15552.2859	0.00994					
C13	Y CO	2.1515	1.1559	2.07799	1.1705	0.00165	0.04057	0.06	1, 37
	X1 MILEAGE	30169.1795	19239.0967	0.00244					
C14	Y CO	2.6440	1.1715	2.35273	1.1758	0.02239	0.14962	0.76	1, 33
	X1 MILEAGE	26764.4000	16107.2622	0.01089					
F31	Y CO	1.9061	1.6739	1.84971	1.6968	0.00028	0.01662	0.01	1, 36
	X1 MILEAGE	28535.3421	13969.5495	0.00199					
F32	Y CO	1.3181	0.8928	0.74686	0.8545	0.10570	0.32512	4.85	1, 41
	X1 MILEAGE	16508.2558	8387.9351	0.03461					
F33	Y CO	1.3191	0.4867	1.55855	0.4772	0.06174	-0.24847	2.70	1, 41
	X1 MILEAGE	28972.0000	14631.3926	-0.00827					
F34	Y CO	1.1705	0.4265	0.95456	0.4165	0.07221	0.26872	2.80	1, 36
	X1 MILEAGE	20216.6579	10729.0642	0.01068					
F35	Y CO	1.5126	0.7397	1.53143	0.7486	0.00013	-0.01144	0.01	1, 41
	X1 MILEAGE	28495.6977	12798.6456	-0.00006					
F36	Y CO	2.2438	0.9254	1.54933	0.8821	0.11662	0.34149	4.62	1, 35
	X1 MILEAGE	25693.5946	11692.4940	0.02703					
G51	Y CO	2.1086	0.9636	1.43739	0.9359	0.08353	0.28901	3.10	1, 34
	X1 MILEAGE	27817.2222	11540.8944	0.02419					
G52	Y CO	1.5955	0.6351	1.87419	0.6290	0.04440	-0.21071	1.77	1, 38
	X1 MILEAGE	24404.1000	11718.8523	-0.01142					
G53	Y CO	1.9000	0.7532	1.45382	0.7428	0.05177	0.22752	2.13	1, 39

	X1	MILEAGE	26993.8780	10367.8901	0.01699						
G54	Y	CO	3.0198	1.5667	2.30775	1.5567	0.03623	0.19035	1.54	1,	41
	X1	MILEAGE	29313.1395	12277.6826	0.02429						
G55	Y	CO	2.2178	1.0286	2.54682	1.0289	0.02816	-0.16781	0.99	1,	34
	X1	MILEAGE	21328.3333	11188.8607	-0.01543						
G56	Y	CO	2.0813	0.8397	2.24919	0.8504	0.00982	-0.09911	0.28	1,	28
	X1	MILEAGE	24820.4667	12306.8716	-0.00676						
G61	Y	CO	1.5685	0.5271	1.58306	0.5338	0.00011	-0.01061	0.00	1,	39
	X1	MILEAGE	24676.4878	9511.1250	-0.00099						
G62	Y	CO	1.5447	0.3581	1.51142	0.3623	0.00271	0.05208	0.10	1,	38
	X1	MILEAGE	26157.8750	14641.0603	0.00127						
G63	Y	CO	2.2041	0.8367	2.18568	0.8496	0.00009	0.00960	0.00	1,	32
	X1	MILEAGE	22936.4412	10001.6028	0.00080						
G66	Y	CO	2.0879	0.5855	2.25575	0.5833	0.03181	-0.17835	1.31	1,	40
	X1	MILEAGE	21101.7857	13125.1078	-0.00796						
G67	Y	CO	2.0975	1.6231	1.14752	1.5889	0.06905	0.26277	2.52	1,	34
	X1	MILEAGE	29631.7500	13303.7610	0.03206						
G74	Y	CO	2.6568	0.9434	1.77527	0.8056	0.29297	0.54127	13.26	1,	32
	X1	MILEAGE	30005.5000	17381.7995	0.02934						
G72	Y	CO	2.1862	0.7075	2.24255	0.7168	0.00207	-0.04553	0.07	1,	35
	X1	MILEAGE	33659.9189	19250.2929	-0.00167						
G76	Y	CO	1.2871	0.3690	1.09408	0.3616	0.06809	0.26094	2.41	1,	33
	X1	MILEAGE	30692.1714	15307.8228	0.00629						
V81	Y	CO	2.0679	0.6358	1.63289	0.5985	0.13550	0.36811	6.27	1,	40
	X1	MILEAGE	24270.8571	13059.3965	0.01792						
V82	Y	CO	1.2487	0.8656	1.00912	0.8679	0.02111	0.14530	0.80	1,	37
	X1	MILEAGE	28165.2051	14784.6234	0.00851						

DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE NO

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	NO	1755.4324	601.1825	2481.15873	502.5269	0.32068	-0.56629	16.52	1, 35
	X1	MILEAGE	21244.0811	9965.7694	-34.16157					
C11	Y	NO	1921.5945	436.3447	1939.83708	442.4018	0.00060	-0.02447	0.02	1, 35
	X1	MILEAGE	24581.8919	14388.7696	-0.74214					
C12	Y	NO	1449.4152	430.8651	2073.53603	378.6932	0.24784	-0.49784	12.19	1, 37
	X1	MILEAGE	30736.3077	15552.2859	-13.79220					
C13	Y	NO	1606.4736	471.0071	1517.64283	473.9121	0.01499	0.12243	0.55	1, 36
	X1	MILEAGE	29734.1579	19301.9876	2.98744					
C14	Y	NO	1203.5713	552.1732	1550.81571	518.7866	0.14323	-0.37846	5.52	1, 33
	X1	MILEAGE	26764.4000	16107.2622	-12.97414					
F31	Y	NO	1905.5525	747.6202	1610.16236	743.6191	0.03741	0.19343	1.40	1, 36
	X1	MILEAGE	28539.3421	13969.5495	10.35177					
F32	Y	NO	1904.2556	633.4353	2284.74216	610.5241	0.09315	-0.30520	4.21	1, 41
	X1	MILEAGE	16508.2558	8387.9351	-23.04842					
F33	Y	NO	1812.4651	474.8858	2262.44245	421.1159	0.22976	-0.47934	12.23	1, 41
	X1	MILEAGE	28972.0000	14631.3926	-15.53149					
F34	Y	NO	1765.9473	365.1257	1781.74212	370.0646	0.00053	-0.02295	0.02	1, 36
	X1	MILEAGE	20216.6579	18729.0642	-0.78151					
F35	Y	NO	1735.1860	417.7522	1738.43086	422.8135	0.00001	-0.00348	0.00	1, 41
	X1	MILEAGE	28495.6977	12798.6456	-0.11393					
F36	Y	NO	1078.3242	310.4832	1373.70258	283.8476	0.18743	-0.43293	8.07	1, 35
	X1	MILEAGE	25693.5946	11692.4940	-11.49622					
G51	Y	NO	1175.0833	320.2307	1390.22173	312.0299	0.07769	-0.27873	2.86	1, 34
	X1	MILEAGE	27817.2222	11540.8944	-7.73401					
G52	Y	NO	1305.2500	353.4916	1195.45292	354.1067	0.02225	0.14916	0.86	1, 38
	X1	MILEAGE	24404.1000	11718.8523	4.49919					
G53	Y	NO	1580.2439	319.3002	1788.11893	313.0955	0.06252	-0.25005	2.68	1, 39

516

	X1	MILEAGE	26995.8788	10367.8901	-7.70086						
654	Y	NO	1065.9766	492.2712	1447.96604	471.1889	0.10563	-0.32501	4.84	1,	41
	X1	MILEAGE	29313.1395	12277.6826	-13.03136						
655	Y	NO	1632.7500	452.7270	1396.02458	441.7173	0.07524	0.27431	2.77	1,	34
	X1	MILEAGE	21328.3333	11188.8607	11.09907						
656	Y	NO	1120.2332	302.9086	1348.53760	285.9342	0.13966	-0.37371	4.55	1,	28
	X1	MILEAGE	24820.4667	12306.8716	-9.19826						
661	Y	NO	1509.1218	363.7094	1638.23744	364.8786	0.01872	-0.13683	0.74	1,	39
	X1	MILEAGE	24676.4878	9511.1250	-5.23257						
662	Y	NO	1430.5750	257.0976	1624.03071	236.2315	0.17738	-0.42117	8.19	1,	38
	X1	MILEAGE	26157.8750	14641.0603	-7.39574						
663	Y	NO	1364.7646	357.7328	1465.79349	360.5143	0.01917	-0.12315	0.49	1,	32
	X1	MILEAGE	22936.4412	10001.6028	-4.40492						
664	Y	NO	1204.2141	213.7540	1302.71006	207.3307	0.08214	-0.28661	3.58	1,	40
	X1	MILEAGE	21101.7857	13125.1078	-4.66769						
667	Y	NO	1267.9165	479.2706	1644.97454	454.9232	0.12476	-0.35322	4.85	1,	34
	X1	MILEAGE	29631.7500	13303.7610	-12.72487						
671	Y	NO	1242.9705	395.8571	1568.51571	353.4466	0.22695	-0.47639	9.39	1,	32
	X1	MILEAGE	30005.5000	17381.7995	-10.84953						
672	Y	NO	1433.7026	444.6283	1287.35519	442.8964	0.03534	0.18798	1.28	1,	35
	X1	MILEAGE	33659.9189	19250.2929	4.34183						
676	Y	NO	1546.0571	413.9221	1759.29137	408.0419	0.06602	-0.25694	2.33	1,	33
	X1	MILEAGE	30692.1714	15307.8228	-6.94753						
V81	Y	NO	1502.8333	315.0504	1749.76664	289.2113	0.17786	-0.42173	8.65	1,	40
	X1	MILEAGE	24270.8571	13059.3965	-10.17410						
V82	Y	NO	1396.0256	634.1954	1769.70944	611.1931	0.09567	-0.30930	3.91	1,	37
	X1	MILEAGE	28165.2051	14784.6234	-13.26763						

520A

DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE NOC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y NOC	1600.2148	567.8739	2204.58078	499.0182	0.24925	-0.49925	11.62	1, 35
	X1 MILEAGE	21244.0811	9965.7694	-28.44888					
C11	Y NOC	1722.7632	349.1649	1695.02974	353.7357	0.00216	0.04649	0.08	1, 35
	X1 MILEAGE	24581.8919	14388.7696	1.12819					
C12	Y NOC	1508.4565	394.7176	1837.31014	362.7356	0.17771	-0.42156	8.00	1, 37
	X1 MILEAGE	30736.3077	15552.2859	-10.69921					
C13	Y NOC	1457.6086	420.0636	1337.67356	418.4053	0.03470	0.18627	1.29	1, 36
	X1 MILEAGE	29734.1579	19301.9876	4.05370					
C14	Y NOC	1103.8269	522.6608	1364.57297	506.0456	0.09014	-0.30023	3.27	1, 33
	X1 MILEAGE	26764.4000	16107.2622	-9.74230					
F31	Y NOC	1698.1919	651.8296	1422.65441	646.5165	0.04282	0.20694	1.61	1, 36
	X1 MILEAGE	28535.3421	13969.5495	9.65600					
F32	Y NOC	1741.0906	590.7430	1911.40778	591.4539	0.02146	-0.14649	0.90	1, 41
	X1 MILEAGE	16508.2558	8387.9351	-10.31724					
F33	Y NOC	1673.2092	432.1879	2023.79149	399.0380	0.16782	-0.40966	8.27	1, 41
	X1 MILEAGE	28972.0000	14631.3926	-12.10076					
F34	Y NOC	1598.1689	330.1243	1557.28755	333.9549	0.00432	0.06572	0.16	1, 36
	X1 MILEAGE	20216.6579	10729.0642	2.02196					
F35	Y NOC	1597.0022	377.2144	1631.24729	381.4700	0.00166	-0.04077	0.07	1, 41
	X1 MILEAGE	28495.6977	12798.6456	-1.20182					
F36	Y NOC	1013.7227	278.4417	1220.99101	265.6960	0.11475	-0.33875	4.54	1, 35
	X1 MILEAGE	25693.5946	11692.4940	-8.06695					
G51	Y NOC	1026.7405	270.3561	1168.29187	267.7540	0.04718	-0.21722	1.68	1, 34
	X1 MILEAGE	27817.2222	11540.8944	-5.08863					
G52	Y NOC	1181.5183	308.7889	1105.75917	310.6474	0.01388	0.11781	0.53	1, 38
	X1 MILEAGE	24404.1000	11718.8523	3.10435					
G53	Y NOC	1463.3018	308.9658	1576.74242	309.7757	0.01989	-0.14102	0.79	1, 39

	X1	MILEAGE	26993.8780	10367.8901	-4.20244						
G54	Y	NOC	962.6824	430.4410	1301.41739	411.3133	0.10864	-0.32961	5.00	1.	41
	X1	MILEAGE	29313.1395	12277.6826	-11.55576						
G55	Y	NOC	1483.7883	434.0246	1259.70174	423.9013	0.07336	0.27085	2.69	1.	34
	X1	MILEAGE	21328.3333	11188.8607	10.50657						
G56	Y	NOC	1004.0154	270.6394	1132.04558	267.7460	0.05502	-0.23456	1.63	1.	28
	X1	MILEAGE	24820.4667	12306.8716	-5.15827						
G61	Y	NOC	1363.5007	356.8895	1449.17389	359.8862	0.00856	-0.09252	0.34	1.	39
	X1	MILEAGE	24676.4878	9511.1250	-3.47207						
G62	Y	NOC	1302.8113	226.3185	1470.86631	208.5371	0.17274	-0.41562	7.93	1.	38
	X1	MILEAGE	26157.8750	14641.0603	-6.42468						
G63	Y	NOC	1234.5605	359.3066	1285.91909	364.1687	0.00388	-0.06233	0.12	1.	32
	X1	MILEAGE	22936.4412	10001.6028	-2.23933						
G66	Y	NOC	1103.1199	187.9178	1156.20179	187.2940	0.03087	-0.17569	1.27	1.	48
	X1	MILEAGE	21101.7857	13125.1078	-2.51593						
G67	Y	NOC	1192.3191	438.0422	1386.82309	435.5167	0.03974	-0.19935	1.41	1.	34
	X1	MILEAGE	29631.7500	13303.7610	-6.56406						
G71	Y	NOC	1142.5310	378.4455	1417.69098	348.5624	0.17740	-0.42119	6.90	1.	32
	X1	MILEAGE	30005.5000	17381.7995	-9.17033						
G72	Y	NOC	1289.7249	363.4496	1148.19758	359.3491	0.04959	0.22270	1.83	1.	35
	X1	MILEAGE	33659.9189	19250.2929	4.20458						
G76	Y	NOC	1411.7043	382.6929	1537.54058	383.1891	0.02690	-0.16400	0.91	1.	33
	X1	MILEAGE	30692.1714	15307.8228	-4.09996						
V81	Y	NOC	1382.9958	279.8118	1580.05090	262.1626	0.14359	-0.37893	6.71	1.	40
	X1	MILEAGE	24270.8571	13059.3965	-8.11902						
V82	Y	NOC	1263.8899	605.7357	1577.13391	590.8170	0.07369	-0.27145	2.94	1.	37
	X1	MILEAGE	28165.2051	14784.6234	-11.12172						

TABLE G-2

Houston

By Class

Composite

HC

CO

NO_x

NO_xC

DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE HC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y HC	335.5276	124.7130	313.94703	126.1546	0.00598	0.07736	0.20	1, 34
	X1 MILEAGE	29449.5556	13164.9850	0.73280					
C11	Y HC	337.8716	215.9903	93.69716	167.8776	0.41179	0.64171	25.90	1, 37
	X1 MILEAGE	29890.3077	16966.7972	8.16902					
C12	Y HC	380.5608	371.2048	291.50617	371.9935	0.02085	0.14440	0.83	1, 39
	X1 MILEAGE	33062.4634	19900.8663	2.69357					
C13	Y HC	314.8108	109.7798	315.32842	111.3368	0.00000	-0.00220	0.00	1, 35
	X1 MILEAGE	37568.3514	17686.6340	-0.01378					
C14	Y HC	319.6313	139.9111	309.01269	141.7307	0.00155	0.03942	0.06	1, 36
	X1 MILEAGE	34016.0000	17668.7492	0.31216					
F31	Y HC	318.5000	185.7147	195.63982	179.2247	0.09384	0.30634	3.73	1, 36
	X1 MILEAGE	32810.5000	15193.1111	3.74452					
F32	Y HC	310.5674	107.0116	264.64790	103.8372	0.08460	0.29086	3.23	1, 35
	X1 MILEAGE	18976.9189	12863.2051	2.41976					
F33	Y HC	404.0000	190.2917	345.24824	191.1363	0.01993	0.14117	0.69	1, 34
	X1 MILEAGE	31687.3611	14488.6366	1.85409					
F34	Y HC	349.1387	131.9775	410.82441	130.7744	0.04620	-0.21495	1.65	1, 34
	X1 MILEAGE	23551.9722	10831.0929	-2.61914					
F35	Y HC	289.6755	143.8408	311.59377	145.6104	0.00371	-0.06090	0.13	1, 35
	X1 MILEAGE	35592.6757	14226.0980	-0.61581					
F36	Y HC	333.0605	214.2109	241.72358	213.2190	0.04020	0.20050	1.30	1, 31
	X1 MILEAGE	29759.2121	13993.7887	3.06920					
G51	Y HC	284.8684	90.4350	237.95314	89.3926	0.04933	0.22210	1.87	1, 36
	X1 MILEAGE	34191.7105	14638.5158	1.37217					
G52	Y HC	225.3684	138.9037	212.75518	140.7250	0.00134	0.03667	0.05	1, 36
	X1 MILEAGE	31243.1053	12616.2364	0.40370					
G53	Y HC	420.7749	201.1497	115.66066	130.3769	0.59066	0.76855	54.83	1, 38

4/6/72

52A

	X1	MILEAGE	28898.9506	14642.2734	10.55797						
654	Y	MC	490.6111	264.9163	446.43250	268.3048	0.00356	0.05968	0.12	1.	34
	X1	MILEAGE	35864.1111	12835.5179	1.23176						
655	Y	MC	321.4045	100.2042	269.08694	98.2177	0.06269	0.25038	2.68	1.	40
	X1	MILEAGE	29652.1667	14197.9863	1.76708						
656	Y	MC	579.7998	834.4215	195.90892	831.2747	0.03672	0.19162	1.26	1.	33
	X1	MILEAGE	29875.1143	12443.1386	12.84985						
661	Y	MC	269.5586	41.4350	303.26409	40.0532	0.09390	-0.30644	3.32	1.	22
	X1	MILEAGE	27242.9118	10262.7070	-1.23726						
662	Y	MC	243.5789	54.1088	292.03754	52.0399	0.10001	-0.31624	4.00	1.	36
	X1	MILEAGE	30035.1579	10605.8158	-1.61345						
668	Y	MC	350.1428	184.2365	422.96042	183.2323	0.00353	-0.28901	3.01	1.	28
	X1	MILEAGE	35591.4286	15007.2281	-2.04599						
666	Y	MC	310.1499	122.0447	258.97058	121.9626	0.02695	0.16417	1.05	1.	38
	X1	MILEAGE	28236.0750	11054.2735	1.81249						
667	Y	MC	242.2258	96.0811	159.57606	91.6606	0.12024	0.34675	3.96	1.	29
	X1	MILEAGE	31519.4194	12705.4819	2.62218						
671	Y	MC	267.3428	45.2060	271.25280	45.8879	0.00095	-0.03076	0.03	1.	36
	X1	MILEAGE	37929.2632	13489.6446	-0.10312						
672	Y	MC	248.9706	45.4516	238.19920	45.6548	0.02161	0.14701	0.71	1.	32
	X1	MILEAGE	24438.5882	15160.4528	0.44079						
676	Y	MC	179.5278	100.2293	96.38380	80.7994	0.36870	0.60720	19.86	1.	34
	X1	MILEAGE	25122.1667	10388.9311	3.30959						
V81	Y	MC	716.2629	626.6395	43.67959	563.3707	0.21358	0.46215	9.78	1.	36
	X1	MILEAGE	29845.0789	12850.6848	22.53580						
V82	Y	MC	445.8999	432.4172	-59.93456	324.0853	0.45766	0.67658	23.63	1.	28
	X1	MILEAGE	27468.7667	15885.6443	18.41489						

DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE CO

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	CO	1.8133	0.9037	2.03197	0.9116	0.01163	-0.10782	0.40	1, 34
	X1	MILEAGE	29449.5556	13164.9850	-0.00740					
C11	Y	CO	2.2372	1.2848	1.21636	1.1622	0.20339	0.45099	9.45	1, 37
	X1	MILEAGE	29890.3077	16966.7972	0.03419					
C12	Y	CO	1.9612	1.0930	1.75926	1.1000	0.01237	0.11122	0.49	1, 39
	X1	MILEAGE	33062.4634	19900.8663	0.00611					
C13	Y	CO	1.9766	1.0739	1.96512	1.0887	0.00002	0.00491	0.00	1, 36
	X1	MILEAGE	37895.0263	17561.8261	0.00030					
C14	Y	CO	2.6945	1.6704	2.11989	1.6662	0.03192	0.17867	1.19	1, 36
	X1	MILEAGE	34016.0000	17668.7492	0.01689					
F31	Y	CO	1.1545	0.4585	1.18370	0.4647	0.00087	-0.02951	0.03	1, 36
	X1	MILEAGE	32810.5000	15193.1111	-0.00089					
F32	Y	CO	2.0941	1.3700	1.33709	1.2883	0.14027	0.37453	5.71	1, 35
	X1	MILEAGE	18976.9189	12863.2051	0.03989					
F33	Y	CO	1.4319	0.6238	1.00381	0.6009	0.09848	0.31382	3.71	1, 34
	X1	MILEAGE	31687.3611	14488.6366	0.01351					
F34	Y	CO	1.8053	0.7525	1.35660	0.7342	0.07519	0.27422	2.76	1, 34
	X1	MILEAGE	23551.9722	10831.0929	0.01905					
F35	Y	CO	1.6378	0.8453	1.49355	0.8553	0.00466	0.06823	0.16	1, 35
	X1	MILEAGE	35592.6757	14226.0980	0.00409					
F36	Y	CO	2.7233	1.1783	1.44927	1.0308	0.25854	0.50847	10.81	1, 31
	X1	MILEAGE	29759.2121	13993.7887	0.04281					
G51	Y	CO	1.6997	0.8069	1.02404	0.7636	0.12854	0.35853	5.31	1, 36
	X1	MILEAGE	34191.7105	14638.5158	0.01976					
G52	Y	CO	1.2958	0.5953	1.21639	0.6026	0.00290	0.05386	0.10	1, 36
	X1	MILEAGE	31243.1053	12616.2364	0.00254					
G53	Y	CO	1.8457	0.5948	1.63795	0.5931	0.03133	0.17701	1.23	1, 38

3525
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	X1	MILEAGE	28698.9500	14642.2734	0.00719						
G54	Y	CO	3.5194	1.5685	4.57394	1.5446	0.05789	-0.24060	2.09	1.	34
	X1	MILEAGE	35866.1111	12835.5179	-0.02940						
G55	Y	CO	2.0529	0.7638	1.52117	0.7290	0.11110	0.33332	5.00	1.	40
	X1	MILEAGE	29652.1667	14197.9863	0.01799						
G56	Y	CO	2.5837	1.2692	1.87969	1.2535	0.05338	0.23104	1.86	1.	33
	X1	MILEAGE	29875.1143	12443.1386	0.02397						
G61	Y	CO	1.6756	0.5532	1.48013	0.5567	0.01772	0.13311	0.58	1.	32
	X1	MILEAGE	27242.9118	10262.7070	0.00717						
G62	Y	CO	1.6824	0.5072	1.76816	0.5132	0.00357	-0.05973	0.13	1.	36
	X1	MILEAGE	30035.1579	10605.8158	-0.00286						
G63	Y	CO	2.6694	1.2905	1.49770	1.1992	0.16110	0.40137	6.53	1.	34
	X1	MILEAGE	34869.0000	15413.3265	0.03360						
G66	Y	CO	2.3917	0.7388	2.13431	0.7415	0.01861	0.13641	0.72	1.	38
	X1	MILEAGE	28236.8750	11054.2735	0.00912						
G67	Y	CO	2.1732	1.3780	0.66687	1.2582	0.19416	0.44064	6.99	1.	29
	X1	MILEAGE	31519.4194	12705.4819	0.04779						
G71	Y	CO	3.0284	0.8405	2.98748	0.8520	0.00030	0.01732	0.01	1.	36
	X1	MILEAGE	37929.2632	13489.6446	0.00108						
G72	Y	CO	2.0391	0.5466	1.86913	0.5447	0.03598	0.18969	1.23	1.	33
	X1	MILEAGE	24496.1429	14939.7218	0.00694						
G76	Y	CO	1.4911	0.6488	0.77856	0.3915	0.64631	0.80393	62.13	1.	34
	X1	MILEAGE	25122.1667	18388.9311	0.02836						
V81	Y	CO	2.7103	1.6836	1.69699	1.6485	0.06716	0.25916	2.59	1.	36
	X1	MILEAGE	29845.0789	12850.6848	0.03395						
V82	Y	CO	1.8210	1.4547	1.04541	1.4083	0.09507	0.30834	2.94	1.	28
	X1	MILEAGE	27468.7667	15805.6443	0.02824						

DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE NO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y NO	1376.8333	404.8007	1482.00104	407.9912	0.01349	-0.11614	0.46	1, 34
	X1 MILEAGE	29449.5556	13164.9850	-3.57114					
C11	Y NO	1604.7776	636.9520	2069.61985	591.8488	0.16128	-0.40159	6.34	1, 34
	X1 MILEAGE	31061.5833	17092.7030	-14.96520					
C12	Y NO	1341.7295	491.4146	1482.97146	491.4969	0.02745	-0.16569	0.99	1, 35
	X1 MILEAGE	34637.2162	19967.1877	-4.07775					
C13	Y NO	1365.9426	478.1641	1488.49724	482.2719	0.01266	-0.11253	0.42	1, 33
	X1 MILEAGE	39461.1714	17326.2760	-3.10573					
C14	Y NO	914.0540	394.7731	1046.91401	394.2795	0.03021	-0.17380	1.09	1, 35
	X1 MILEAGE	34389.4324	17759.7898	-3.86340					
F31	Y NO	1885.6111	550.8316	2148.31206	544.3988	0.05113	-0.22611	1.83	1, 34
	X1 MILEAGE	32789.1667	15545.9866	-8.01186					
F32	Y NO	1355.0540	663.2153	1796.78178	600.1744	0.20382	-0.45146	8.96	1, 35
	X1 MILEAGE	18076.9189	12863.2051	-23.27711					
F33	Y NO	1725.2646	458.9141	2093.44184	431.1918	0.14992	-0.37937	5.38	1, 32
	X1 MILEAGE	31515.0294	14902.3082	-11.68264					
F34	Y NO	1354.7646	496.9520	1554.72650	496.2819	0.03292	-0.18143	1.09	1, 32
	X1 MILEAGE	24098.4412	10865.8250	-8.29787					
F35	Y NO	1194.4412	421.1038	1307.00761	425.1667	0.01150	-0.10724	0.37	1, 32
	X1 MILEAGE	36079.2353	14474.7096	-3.12099					
F36	Y NO	909.8621	363.1748	1408.12389	301.8026	0.33408	-0.57800	13.55	1, 27
	X1 MILEAGE	30073.8276	12669.9251	-16.56797					
G51	Y NO	1208.7566	454.3744	1431.56407	450.9117	0.04254	-0.20625	1.56	1, 35
	X1 MILEAGE	34642.2703	14570.8650	-6.43169					
G52	Y NO	1158.1350	450.3780	1590.29570	422.2662	0.14536	-0.38126	5.95	1, 35
	X1 MILEAGE	31625.0000	12565.6197	-13.66518					
G53	Y NO	1428.5586	395.3331	1541.06587	397.3862	0.02021	-0.14214	0.66	1, 32

C20A

	X1	MILEAGE	29855.9412	14912.3063	-3.76837					
G54	Y	NO	710.5757	334.5115	381.51698	319.7662	0.11477	0.33878	4.02	1, 31
	X1	MILEAGE	34759.8182	11971.1009	9.46663					
G55	Y	NO	1508.0498	460.6578	1731.49896	453.2570	0.05670	-0.23811	2.28	1, 38
	X1	MILEAGE	29627.4500	14543.7022	-7.54200					
G56	Y	NO	895.0586	486.2151	1264.07238	467.5221	0.10343	-0.32161	3.69	1, 32
	X1	MILEAGE	29690.0000	12581.2509	-12.42884					
G61	Y	NO	1508.2903	461.3150	1966.74205	435.0045	0.14045	-0.37477	4.74	1, 29
	X1	MILEAGE	27457.1613	10354.4500	-16.69717					
G62	Y	NO	1273.2000	432.9333	1645.25653	420.7132	0.08343	-0.28884	3.00	1, 33
	X1	MILEAGE	29815.0571	10021.0071	-12.47900					
G63	Y	NO	1141.5999	470.7457	1503.99373	450.3517	0.11169	-0.33420	4.15	1, 33
	X1	MILEAGE	35359.7714	15350.3142	-10.24877					
G66	Y	NO	977.1052	356.7993	1077.80159	359.3737	0.01294	-0.11374	0.47	1, 36
	X1	MILEAGE	28003.5526	11285.5672	-3.59588					
G67	Y	NO	1094.6333	438.6909	1761.67548	349.2728	0.38797	-0.62287	17.75	1, 28
	X1	MILEAGE	31544.3667	12921.9132	-21.14617					
G71	Y	NO	924.2222	263.6256	1024.35761	265.0414	0.01811	-0.13457	0.63	1, 34
	X1	MILEAGE	38462.0000	13626.5620	-2.60350					
G72	Y	NO	1194.7813	310.7834	1462.89594	271.6875	0.26042	-0.51032	10.56	1, 30
	X1	MILEAGE	24550.9375	14522.6451	-10.92077					
G76	Y	NO	1280.3611	337.7819	1496.07175	302.9655	0.21851	-0.46745	9.51	1, 34
	X1	MILEAGE	25122.1667	18388.9311	-8.58647					
V81	Y	NO	1225.3030	476.6373	1707.55695	443.8661	0.15988	-0.39985	5.90	1, 31
	X1	MILEAGE	31653.0000	12509.1878	-15.23569					
V82	Y	NO	1001.7141	438.2696	1307.56144	406.3064	0.17237	-0.41518	5.42	1, 26
	X1	MILEAGE	27647.1429	16448.3849	-11.06254					

DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE NOC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y NOC	1474.3833	417.1125	1592.05510	419.8237	0.01590	-0.12611	0.55	1, 34
	X1 MILEAGE	29449.5556	13164.9850	-3.99573					
C11	Y NOC	1703.0442	656.4330	2173.75960	611.9723	0.15571	-0.39460	6.27	1, 34
	X1 MILEAGE	31061.5833	17092.7030	-15.15428					
C12	Y NOC	1428.8521	507.9112	1556.11811	509.7143	0.02086	-0.14444	0.75	1, 35
	X1 MILEAGE	34637.2162	19967.1877	-3.67498					
C13	Y NOC	1430.7178	440.5297	1483.22262	446.5423	0.00274	-0.05233	0.09	1, 33
	X1 MILEAGE	39461.1714	17326.2760	-1.33098					
C14	Y NOC	987.4033	429.1544	1110.65542	430.4284	0.02200	-0.14832	0.79	1, 35
	X1 MILEAGE	34389.4324	17759.7898	-3.58402					
F31	Y NOC	2061.4204	625.1745	2307.25022	623.1814	0.03476	-0.18643	1.22	1, 34
	X1 MILEAGE	32789.1667	15545.9866	-7.49739					
F32	Y NOC	1399.7354	665.5406	1828.00430	607.3887	0.19025	-0.43618	8.22	1, 35
	X1 MILEAGE	18976.9189	12863.2051	-22.56791					
F33	Y NOC	1857.3220	440.6057	2170.94519	421.3314	0.11329	-0.33658	4.09	1, 32
	X1 MILEAGE	31515.0294	14902.3082	-9.95159					
F34	Y NOC	1456.1919	533.2978	1655.62064	533.8129	0.02843	-0.16861	0.94	1, 32
	X1 MILEAGE	24098.4412	10865.8250	-8.27576					
F35	Y NOC	1268.1719	434.0616	1351.92160	439.4696	0.00599	-0.07741	0.19	1, 32
	X1 MILEAGE	36079.2353	14474.7096	-2.32129					
F36	Y NOC	966.6951	372.6508	1493.07551	304.9806	0.35413	-0.59509	14.80	1, 27
	X1 MILEAGE	30073.8276	12669.9251	-17.50296					
G51	Y NOC	1298.1567	475.2818	1505.01229	473.8787	0.03351	-0.18306	1.21	1, 35
	X1 MILEAGE	34642.2703	14570.8650	-5.97122					
G52	Y NOC	1240.3581	461.3401	1739.53966	422.4753	0.18468	-0.42975	7.93	1, 35
	X1 MILEAGE	31625.0000	12565.6197	-15.77811					
G53	Y NOC	1482.2144	388.1983	1541.05892	393.0863	0.00573	-0.07571	0.18	1, 32

	X1	MILEAGE	29855.9412	14912.3063	-1.97099						
G54	Y	NOC	757.7920	330.6360	422.63742	314.7918	0.12187	0.34910	4.30	1,	31
	X1	MILEAGE	34759.8182	11971.1009	9.64200						
G55	Y	NOC	1600.9070	490.7249	1817.52929	485.3281	0.04696	-0.21669	1.87	1,	38
	X1	MILEAGE	29627.4500	14549.7022	-7.31160						
G56	Y	NOC	983.4490	524.4901	1410.92383	499.8482	0.11928	-0.34537	4.33	1,	32
	X1	MILEAGE	29690.0000	12581.2509	-14.39795						
G61	Y	NOC	1597.0076	417.2830	2055.92136	386.1952	0.17200	-0.41473	6.02	1,	29
	X1	MILEAGE	27457.1613	10354.4500	-16.71409						
G62	Y	NOC	1317.6338	422.5441	1624.68840	415.9098	0.05965	-0.24424	2.09	1,	33
	X1	MILEAGE	29815.0571	10021.0071	-10.29884						
G63	Y	NOC	1238.6094	511.5384	1633.71171	489.1734	0.11243	-0.33530	4.18	1,	33
	X1	MILEAGE	35359.7714	15350.3142	-11.17379						
G66	Y	NOC	1032.5442	338.3715	1085.36205	342.3598	0.00396	-0.06291	0.14	1,	36
	X1	MILEAGE	28003.5526	11285.5672	-1.88619						
G67	Y	NOC	1147.0637	436.5961	1831.47354	340.6078	0.41236	-0.64216	19.65	1,	28
	X1	MILEAGE	31544.3667	12921.9132	-21.69679						
G71	Y	NOC	997.9170	289.6482	1101.02039	291.5310	0.01590	-0.12611	0.55	1,	34
	X1	MILEAGE	38462.0000	13626.5620	-2.68067						
G72	Y	NOC	1252.7954	310.2361	1512.12379	274.1150	0.24449	-0.49446	9.71	1,	30
	X1	MILEAGE	24550.9375	14522.6451	-10.56289						
G76	Y	NOC	1378.5186	322.2516	1588.94129	287.1923	0.22845	-0.47796	10.07	1,	34
	X1	MILEAGE	25122.1667	18388.9311	-8.37598						
V81	Y	NOC	1306.6902	476.1762	1733.20521	452.4713	0.12530	-0.35398	4.44	1,	31
	X1	MILEAGE	31653.0000	12509.1878	-13.47476						
V82	Y	NOC	1050.4063	458.6958	1403.28565	415.6006	0.20948	-0.45769	6.89	1,	26
	X1	MILEAGE	27647.1429	16448.3849	-12.76370						

TABLE G-3

Combined Cities

By Class

Composite

HC

CO

NO_x

NO_xC

DISPLACEMENT CLASSES FOR COMBINED CITIES COMPOSITE HC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y HC	348.3149	133.7424	315.82719	133.7398	0.01393	0.11801	1.00	1, 71
	X1 MILEAGE	25290.6164	12287.0888	1.28457					
C11	Y HC	312.9341	173.4927	179.52699	156.2088	0.20013	0.44736	18.52	1, 74
	X1 MILEAGE	27305.9474	15886.0527	4.88563					
C12	Y HC	342.0249	273.9476	267.32996	272.4749	0.02321	0.15235	1.85	1, 78
	X1 MILEAGE	31928.4625	17839.3422	2.33947					
C13	Y HC	337.7500	241.1046	343.75509	242.7050	0.00019	-0.01383	0.01	1, 74
	X1 MILEAGE	33771.4079	18749.6942	-0.17784					
C14	Y HC	347.0684	229.6134	288.31772	228.8079	0.02080	0.14421	1.51	1, 71
	X1 MILEAGE	30539.2095	17711.9123	1.92375					
F31	Y HC	293.0657	139.2251	222.24909	135.9606	0.05906	0.24303	4.64	1, 74
	X1 MILEAGE	30672.9211	14655.3668	2.30879					
F32	Y HC	294.4248	95.0729	257.55375	93.0020	0.05520	0.23495	4.56	1, 78
	X1 MILEAGE	17650.0125	10692.9807	2.08900					
F33	Y HC	413.3291	320.3940	432.48291	322.3343	0.00083	-0.02876	0.06	1, 77
	X1 MILEAGE	30209.3797	14536.8493	-0.63409					
F34	Y HC	328.0540	111.6728	323.63200	112.4240	0.00039	0.01964	0.03	1, 72
	X1 MILEAGE	21839.2432	10835.4846	0.20247					
F35	Y HC	285.5999	114.0781	271.68029	114.6444	0.00283	0.05320	0.22	1, 78
	X1 MILEAGE	31778.0500	13856.0623	0.43801					
F36	Y HC	306.6428	157.4346	240.27816	155.4834	0.03877	0.19690	2.74	1, 68
	X1 MILEAGE	27610.2429	12896.7315	2.40342					
G51	Y HC	308.0945	181.9041	305.06816	183.1582	0.00005	0.00722	0.00	1, 72
	X1 MILEAGE	31090.6081	13518.8846	0.09799					
G52	Y HC	225.6923	114.7412	221.08319	115.4745	0.00033	0.01819	0.03	1, 76
	X1 MILEAGE	27735.9231	12564.9746	0.16617					
G53	Y HC	413.9308	175.2548	185.63481	142.7387	0.34494	0.58732	41.60	1, 79

E-23A

	X1	MILEAGE	27934.6543	12616.7837	8.15814						
G54	Y	HC	437.1770	212.0071	391.43859	212.5883	0.00740	0.08603	0.57	1,	77
	X1	MILEAGE	32299.3038	12879.5433	1.41606						
G55	Y	HC	317.1152	93.0506	293.51618	92.8357	0.01754	0.13244	1.36	1,	76
	X1	MILEAGE	25810.3974	13479.0134	0.91430						
G56	Y	HC	446.2153	626.9607	209.91617	622.5386	0.02946	0.17165	1.91	1,	63
	X1	MILEAGE	27542.2000	12543.2461	8.57951						
G61	Y	HC	256.6799	50.6469	296.78807	48.6012	0.09160	-0.30265	7.36	1,	73
	X1	MILEAGE	25839.9333	9875.2665	-1.55219						
G62	Y	HC	239.3590	50.9749	257.65019	50.6054	0.02724	-0.16505	2.13	1,	76
	X1	MILEAGE	28046.8077	12900.6722	-0.65219						
G63	Y	HC	327.9854	100.7486	346.17540	101.1096	0.00763	-0.08736	0.52	1,	67
	X1	MILEAGE	29355.6377	14204.6064	-0.61947						
G66	Y	HC	284.2803	100.7602	246.71961	99.5183	0.03654	0.19114	3.03	1,	80
	X1	MILEAGE	24582.3171	12605.9520	1.52795						
G67	Y	HC	244.6119	116.9523	156.01247	111.5712	0.10369	0.32202	7.52	1,	69
	X1	MILEAGE	30505.1493	12966.6723	2.90449						
G71	Y	HC	278.4165	98.3638	179.86389	87.7326	0.21568	0.46442	19.25	1,	70
	X1	MILEAGE	34187.4861	15846.8723	2.88270						
G72	Y	HC	253.3098	53.2500	238.80191	52.8833	0.02781	0.16677	1.97	1,	69
	X1	MILEAGE	29244.0704	17901.3143	0.49698						
G76	Y	HC	181.6338	80.4479	120.57098	71.7596	0.21570	0.46444	18.98	1,	78
	X1	MILEAGE	27867.9437	17051.6577	2.19115						
V81	Y	HC	569.1748	473.5634	125.98894	423.6150	0.20995	0.45820	20.73	1,	78
	X1	MILEAGE	26918.6125	13179.6402	16.46391						
V82	Y	HC	380.8550	332.2297	68.82419	287.6823	0.26122	0.51110	23.69	1,	67
	X1	MILEAGE	27862.4058	15162.2184	11.19898						

DISPLACEMENT CLASSES FOR COMBINED CITIES COMPOSITE CO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y CO	1.8166	0.9885	1.55098	0.9580	0.01704	0.13054	1.23	1, 71
	X1 MILEAGE	25290.6164	12287.0888	0.01090					
C11	Y CO	1.9624	1.0697	1.39354	1.0241	0.09571	0.30937	7.83	1, 74
	X1 MILEAGE	27305.9474	15886.0527	0.02083					
C12	Y CO	1.9204	0.8711	1.68114	0.8663	0.02354	0.15344	1.88	1, 78
	X1 MILEAGE	31928.4625	17839.3422	0.00749					
C13	Y CO	2.0652	1.1123	2.05029	1.1197	0.00005	0.00739	0.00	1, 75
	X1 MILEAGE	33981.9351	18717.3217	0.00044					
C14	Y CO	2.6703	1.4431	2.24399	1.4330	0.02772	0.16650	2.02	1, 71
	X1 MILEAGE	30539.2055	17211.9123	0.01396					
F31	Y CO	1.5303	1.2764	1.63361	1.2840	0.00150	-0.03868	0.11	1, 74
	X1 MILEAGE	30672.9211	14655.3668	-0.00337					
F32	Y CO	1.6770	1.1961	0.93848	1.1163	0.13993	0.37407	12.69	1, 78
	X1 MILEAGE	17650.0125	10692.9807	0.04184					
F33	Y CO	1.3705	0.5526	1.31377	0.5555	0.00244	0.04940	0.19	1, 77
	X1 MILEAGE	30209.3797	14536.8493	0.00188					
F34	Y CO	1.4793	0.6824	1.06434	0.6551	0.09102	0.30170	7.21	1, 72
	X1 MILEAGE	21839.2432	10835.4846	0.01900					
F35	Y CO	1.5705	0.7877	1.48112	0.7917	0.00245	0.04947	0.19	1, 78
	X1 MILEAGE	31778.0500	13856.0623	0.00281					
F36	Y CO	2.4699	1.0718	1.42257	0.9607	0.20831	0.45640	17.89	1, 68
	X1 MILEAGE	27610.2429	12896.7315	0.03793					
G51	Y CO	1.8986	0.9041	1.38366	0.8820	0.06134	0.24767	4.71	1, 72
	X1 MILEAGE	31090.6081	13518.8846	0.01656					
G52	Y CO	1.4495	0.6304	1.64609	0.6281	0.01995	-0.14124	1.55	1, 76
	X1 MILEAGE	27735.9231	12564.9746	-0.00709					
G53	Y CO	1.8732	0.6759	1.59091	0.6679	0.03581	0.18923	2.93	1, 79

	X1	MILEAGE	27934.6543	12616.7837	0.01014						
G54	Y	CO	3.2475	1.5774	3.12642	1.9869	0.00093	0.03C55	0.07	1.	77
	X1	MILEAGE	32299.3038	12879.5433	0.00374						
G55	Y	CO	2.1290	0.8935	2.02937	0.8979	0.00339	0.05821	0.26	1.	76
	X1	MILEAGE	25810.3974	13479.0134	0.00386						
G56	Y	CO	2.3518	1.1131	1.98194	1.1090	0.02295	0.15151	1.48	1.	63
	X1	MILEAGE	27542.2000	12543.2461	0.01344						
G61	Y	CO	1.6171	0.5381	1.51711	0.5404	0.00504	0.07099	0.37	1.	73
	X1	MILEAGE	25839.9333	9875.2665	0.00387						
G62	Y	CO	1.6118	0.4397	1.59174	0.4425	0.00044	0.02097	0.03	1.	76
	X1	MILEAGE	28046.8077	12900.6722	0.00071						
G63	Y	CO	2.4434	1.1110	1.66194	1.0501	0.11966	0.34592	9.24	1.	60
	X1	MILEAGE	24073.1857	14297.9427	0.02688						
G66	Y	CO	2.2361	0.6780	2.17560	0.6815	0.00209	0.04575	0.17	1.	80
	X1	MILEAGE	24582.3171	12605.9520	0.00246						
G67	Y	CO	2.1325	1.5039	0.94381	1.4273	0.11289	0.33599	8.27	1.	65
	X1	MILEAGE	30505.1493	12966.6723	0.03897						
G71	Y	CO	2.8529	0.9037	2.17609	0.8535	0.12053	0.34718	9.59	1.	70
	X1	MILEAGE	34187.4861	15846.8723	0.01980						
G72	Y	CO	2.1147	0.6343	2.04368	0.6374	0.00465	0.06817	0.33	1.	70
	X1	MILEAGE	29205.3056	17777.8449	0.00249						
G76	Y	CO	1.3906	0.5359	0.88991	0.4428	0.32681	0.57167	33.50	1.	69
	X1	MILEAGE	27867.9437	17051.6577	0.01797						
V81	Y	CO	2.3730	1.2812	1.58009	1.2288	0.09181	0.30301	7.89	1.	78
	X1	MILEAGE	26918.6125	13179.6402	0.02946						
V82	Y	CO	1.4975	1.1844	1.01535	1.1636	0.04908	0.22154	3.46	1.	67
	X1	MILEAGE	27862.4058	15162.2184	0.01731						

DISPLACEMENT CLASSES FOR COMBINED CITIES COMPOSITE NO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y NO	1568.7258	544.6938	2035.18707	498.7869	0.17310	-0.41606	14.86	1, 71
	X1 MILEAGE	25290.6164	12287.0888	-16.44411					
C11	Y NO	1765.3560	563.7858	2060.54599	541.2874	0.09102	-0.30170	7.11	1, 71
	X1 MILEAGE	27777.3562	16005.6614	-10.62719					
C12	Y NO	1499.7236	483.7067	1784.67749	461.0638	0.10355	-0.32178	8.55	1, 74
	X1 MILEAGE	32635.4342	17826.1644	-8.73159					
C13	Y NO	1491.1506	486.4302	1535.48296	489.2292	0.00251	-0.05007	0.18	1, 71
	X1 MILEAGE	34397.7945	18898.6945	-1.28849					
C14	Y NO	1054.7915	496.2463	1341.09449	472.6334	0.10568	-0.32508	8.27	1, 70
	X1 MILEAGE	30682.8194	17288.5983	-9.33197					
F31	Y NO	1895.8513	654.8818	1885.51619	659.3947	0.00006	0.00763	0.00	1, 72
	X1 MILEAGE	30604.7703	14811.0106	0.33757					
F32	Y NO	1650.2500	699.7773	2106.94199	646.8640	0.15633	-0.39538	14.45	1, 78
	X1 MILEAGE	17650.0125	10692.9807	-25.87499					
F33	Y NO	1773.9609	466.4262	2193.96690	421.6079	0.19370	-0.44011	18.02	1, 75
	X1 MILEAGE	30094.8961	14708.8634	-13.95614					
F34	Y NO	1571.7776	476.4353	1740.04389	472.4655	0.03045	-0.17446	2.20	1, 70
	X1 MILEAGE	22049.7222	10893.6915	-7.63179					
F35	Y NO	1496.4155	496.4803	1710.80079	490.6969	0.03602	-0.18978	2.80	1, 75
	X1 MILEAGE	31844.2727	13995.2229	-6.73237					
F36	Y NO	1004.3030	342.4990	1410.40048	293.7237	0.27585	-0.52522	24.38	1, 64
	X1 MILEAGE	27618.2424	12233.8748	-14.70404					
G51	Y NO	1192.1506	391.6184	1384.77649	385.3533	0.04519	-0.21257	3.36	1, 71
	X1 MILEAGE	31276.4932	13516.8830	-6.15889					
G52	Y NO	1234.5583	407.0358	1405.83489	402.2745	0.03611	-0.19003	2.81	1, 75
	X1 MILEAGE	27873.8831	12587.7653	-6.14476					
G53	Y NO	1511.4800	361.3650	1676.64833	356.1861	0.04159	-0.20393	3.17	1, 73

	X1	MILEAGE	28291.3467	12622.5954	-5.83870						
G54	Y	NO	911.6577	463.5655	1119.42214	459.4878	0.03062	-0.17497	2.34	1,	74
	X1	MILEAGE	31678.1447	12367.0940	-6.55867						
G55	Y	NO	1567.1184	458.1748	1628.31949	460.1008	0.00502	-0.07086	0.37	1,	74
	X1	MILEAGE	25696.2895	13631.3018	-2.38175						
G56	Y	NO	1000.6094	422.9585	1337.38082	396.7897	0.13388	-0.36590	9.58	1,	62
	X1	MILEAGE	27407.4063	12594.8649	-12.28765						
G61	Y	NO	1508.7637	405.5207	1778.50343	394.9331	0.06489	-0.25474	4.86	1,	70
	X1	MILEAGE	25873.7222	9909.0177	-10.42531						
G62	Y	NO	1357.1333	356.6519	1624.04899	337.3862	0.11721	-0.34236	9.69	1,	73
	X1	MILEAGE	27864.5600	12747.0354	-9.57907						
G63	Y	NO	1251.5652	430.7392	1553.81940	407.4503	0.11837	-0.34405	9.00	1,	67
	X1	MILEAGE	29238.1304	14335.4465	-10.33775						
G66	Y	NO	1096.3374	310.4228	1251.86858	301.5923	0.06803	-0.26083	5.69	1,	78
	X1	MILEAGE	24380.1250	12691.9598	-6.37949						
G67	Y	NO	1189.1514	465.9466	1702.17068	414.0615	0.22246	-0.47165	18.31	1,	64
	X1	MILEAGE	30501.1212	13065.9930	-16.81979						
G.1	Y	NO	1079.0427	368.7070	1412.94908	336.6417	0.17845	-0.42244	14.77	1,	68
	X1	MILEAGE	34354.5571	16025.1371	-9.71949						
G72	Y	NO	1322.8984	403.8544	1289.91873	406.3663	0.00241	0.04910	0.16	1,	67
	X1	MILEAGE	29435.4638	17699.5172	1.12032						
G76	Y	NO	1411.3379	397.6979	1590.31105	385.0840	0.07582	-0.27536	5.66	1,	69
	X1	MILEAGE	27867.9437	17051.6577	-6.42274						
V81	Y	NO	1380.7200	415.2949	1772.74787	372.3883	0.20682	-0.45478	19.04	1,	73
	X1	MILEAGE	27519.0000	13257.7876	-14.24592						
V82	Y	NO	1231.2388	590.3777	1567.15694	564.9810	0.09806	-0.31315	7.07	1,	65
	X1	MILEAGE	27948.7015	15381.7289	-12.01917						

DISPLACEMENT CLASSES FOR COMBINED CITIES COMPOSITE NOC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF	
A01	Y	NOC	1538.1609	499.8280	1875.04161	475.5863	0.10722	-0.32745	8.53	1,	71
	X1	MILEAGE	25290.6164	12287.0888	-13.32049						
C11	Y	NOC	1713.0388	520.1192	1937.24894	507.3545	0.06170	-0.24839	4.67	1,	71
	X1	MILEAGE	27777.3562	16005.6614	-8.07180						
C12	Y	NOC	1469.7017	452.0744	1684.64472	439.5026	0.06745	-0.25971	5.35	1,	74
	X1	MILEAGE	32635.4342	17826.1644	-6.58691						
C13	Y	NOC	1444.7158	427.2036	1394.50760	429.3043	0.00417	0.06457	0.30	1,	71
	X1	MILEAGE	34397.7945	18898.6945	1.45954						
C14	Y	NOC	1043.9980	477.1093	1250.17360	466.0437	0.05929	-0.24349	4.41	1,	70
	X1	MILEAGE	30682.8194	17288.5983	-6.71960						
F31	Y	NOC	1874.8977	660.4186	1808.25847	664.1961	0.00238	0.04883	0.17	1,	72
	X1	MILEAGE	30604.7703	14811.0106	2.17779						
F32	Y	NOC	1583.2139	645.5338	1938.20176	612.5448	0.11099	-0.33316	9.74	1,	78
	X1	MILEAGE	17650.0125	10692.9807	-20.11279						
F33	Y	NOC	1754.5059	442.7046	2070.85666	417.5836	0.12198	-0.34925	10.42	1,	75
	X1	MILEAGE	30094.8961	14708.8634	-10.51186						
F34	Y	NOC	1531.1243	440.5417	1618.84492	441.5256	0.00968	-0.09837	0.68	1,	70
	X1	MILEAGE	22049.7222	10893.6915	-3.97892						
F35	Y	NOC	1451.8042	432.9637	1605.11159	430.5313	0.02422	-0.15562	1.86	1,	75
	X1	MILEAGE	31844.2727	13995.2229	-4.81436						
F36	Y	NOC	993.0591	321.4235	1338.62233	284.8341	0.22680	-0.47623	18.77	1,	64
	X1	MILEAGE	27618.2424	12233.8748	-12.51222						
G51	Y	NOC	1164.3076	408.8354	1248.85299	410.0573	0.00799	-0.08937	0.57	1,	71
	X1	MILEAGE	31276.4932	13516.8830	-2.70393						
G52	Y	NOC	1209.8882	388.1081	1360.02769	384.6792	0.03052	-0.17470	2.36	1,	75
	X1	MILEAGE	27873.8831	12587.7653	-5.38645						
G53	Y	NOC	1471.8755	344.8085	1547.52462	345.4956	0.00958	-0.09789	0.71	1,	73

	X1	MILEAGE	28291.5467	12622.5954	-2.67400					
G54	Y	NOC	873.7168	401.0619	1011.19076	400.1314	0.01791	-0.13382	1.35	1, 74
	X1	MILEAGE	31678.1447	12367.0940	-4.33977					
G55	Y	NOC	1545.4297	465.3992	1537.79969	468.5160	0.00008	0.00868	0.01	1, 74
	X1	MILEAGE	25696.2895	13631.3018	0.29689					
G56	Y	NOC	993.0894	421.8032	1265.85538	405.9833	0.08831	-0.29717	6.01	1, 62
	X1	MILEAGE	27407.4063	12594.8649	-9.95231					
G61	Y	NOC	1464.0383	398.6082	1667.64467	393.6898	0.03827	-0.19562	2.79	1, 70
	X1	MILEAGE	25873.7222	9909.0177	-7.86929					
G62	Y	NOC	1309.7285	330.2776	1513.33876	319.0351	0.07953	-0.28202	6.31	1, 73
	X1	MILEAGE	27864.5600	12747.0354	-7.30717					
G63	Y	NOC	1236.6145	439.8773	1437.56067	431.8894	0.05017	-0.22398	3.54	1, 67
	X1	MILEAGE	29238.1304	14335.4465	-6.87287					
G66	Y	NOC	1069.5964	270.5721	1139.27864	269.8432	0.01797	-0.13407	1.43	1, 78
	X1	MILEAGE	24380.1250	12691.9598	-2.85877					
G67	Y	NOC	1171.7485	434.6036	1576.18382	401.6803	0.15891	-0.39864	12.09	1, 64
	X1	MILEAGE	30501.1212	13065.9930	-13.25979					
G71	Y	NOC	1068.1580	341.1051	1320.65570	322.4712	0.11923	-0.34529	9.21	1, 68
	X1	MILEAGE	34354.5571	16025.1371	-7.34989					
G72	Y	NOC	1272.5981	337.8671	1282.54143	340.3265	0.00031	-0.01769	0.02	1, 67
	X1	MILEAGE	29435.4638	17699.5172	-0.33788					
G76	Y	NOC	1394.8777	351.1936	1570.84511	336.6956	0.09399	-0.30658	7.16	1, 69
	X1	MILEAGE	27867.9437	17051.6577	-6.31440					
V81	Y	NOC	1349.4214	378.0012	1634.31169	354.6077	0.13184	-0.36310	11.09	1, 73
	X1	MILEAGE	27519.0000	13257.7876	-10.35247					
V82	Y	NOC	1174.6729	555.5022	1503.66294	529.1905	0.10624	-0.32594	7.73	1, 65
	X1	MILEAGE	27948.7015	15381.7289	-11.77128					

TABLE G-4

Combined Classes

Kansas City

Composite

HC

CO

NO_x

NO_xC

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE HC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	HC	308.0164	171.4838	274.13994	170.6262	0.01094	0.10457	11.42	1.1033
	X1	MILEAGE	26181.2783	13058.6342	1.29395					

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE CO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y CO	1.6967	1.0150	1.64759	1.0077	0.01685	0.12981	17.71	1,1033
	XI MILEAGE	26181.2783	13858.6342	0.00991					

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE NO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y NO	1492.8760	511.8559	1673.48414	503.0888	0.03490	-0.18681	37.32	1.1032
	X1 MILEAGE	26161.4342	13850.6211	-6.90370					

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY COMPOSITE NMC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	HOC	1359.5823	466.0704	1487.10295	461.3784	0.02098	-0.14486	22.12	1,1032
	X1	MILEAGE	26161.4342	13850.6211	-4.87445					

TABLE G-5

Combined Classes

Houston

Composite

HC

CO

NO_x

NO_xC

COMBINED DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE HC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y HC	344.1128	280.4100	242.50419	276.1419	0.03119	0.17661	31.84	1, 989
	X1 MILEAGE	30594.9939	14892.1158	3.32547					

COMBINED DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE CO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y CO	2.0801	1.1660	1.57171	1.1399	0.04521	0.21263	46.97	1, 992
	X1 MILEAGE	30549.3139	14897.8173	0.01664					

COMBINED DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE NO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y NO	1248.4163	519.0997	1514.14738	503.1738	0.06142	-0.24783	60.99	1, 932
	X1 MILEAGE	30067.7580	14943.8918	-0.60870					

COMBINED DISPLACEMENT CLASSES FOR HOUSTON COMPOSITE HOC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	HOC	1328.9966	538.8189	1585.077788	524.6440	0.05294	-0.23009	52.10	1, 932
	X1	MILEAGE	30867.7580	14943.8918	-0.296[illegible]					

TABLE G-6

Combined Classes and Cities

Composite

HC

CO

NO_x

NO_xC

COMBINED DISPLACEMENT CLASSES AND CITIES COMPOSITE HC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y HC	325.6726	231.9106	255.04049	229.1164	0.02443	0.15631	50.69	1.2024
	X1 MILEAGE	28320.6426	14535.3323	2.49399					

COMBINED DISPLACEMENT CLASSES AND CITIES COMPOSITE CO

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	CO	1.9865	1.0955	1.59299	1.0769	0.03408	0.18462	71.53	1.2027
	X1	MILEAGE	28321.1636	14530.9536	0.01391					

C7
C72
A

COMBINED DISPLACEMENT CLASSES AND CITIES COMPOSITE NO

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	NO	1376.8572	529.4476	1630.35517	513.3574	0.06034	-0.24563	*****	1,1964
	X1	MILEAGE	28395.0249	14567.0843	-0.02770					

COMBINED DISPLACEMENT CLASSES AND CITIES COMPOSITE NOC

CLASS		VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	NOC	1345.0664	502.0158	1533.17387	492.7787	0.03695	-0.19223	75.44	1.1966
	X1	MILEAGE	28395.0249	14567.0843	-6.62488					

TABLE G-7

Kansas City

By Class

Mass

HC

CO

NO_x

NO_xC

DISPLACEMENT CLASSES FOR KANSAS CITY MASS HC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	HC	3.6665	1.2434	3.10693	1.2326	0.04457	0.21111	1.63	1, 35
	X1	MILEAGE	21244.0811	9965.7694	0.02694					
C11	Y	HC	2.9065	1.0081	2.84219	1.0135	0.00142	0.03763	0.05	1, 35
	X1	MILEAGE	24581.8919	14388.7896	0.00262					
C12	Y	HC	3.6844	1.1645	3.40840	1.1714	0.01437	0.11988	0.54	1, 37
	X1	MILEAGE	30736.3077	15552.2059	0.00897					
C13	Y	HC	4.8400	4.3715	4.77743	4.4300	0.00008	0.00907	0.00	1, 37
	X1	MILEAGE	30169.1795	19239.8967	0.00207					
C14	Y	HC	5.0529	4.0260	3.31011	3.9454	0.06787	0.26051	2.40	1, 33
	X1	MILEAGE	26764.4000	16107.2622	0.06511					
F31	Y	HC	2.8834	0.7282	2.73419	0.7345	0.01007	0.10033	0.37	1, 38
	X1	MILEAGE	28535.3421	13969.5495	0.00523					
F32	Y	HC	2.7537	0.7255	2.56532	0.7279	0.01741	0.13194	0.73	1, 41
	X1	MILEAGE	16508.2558	8387.9351	0.01141					
F33	Y	HC	5.1995	5.1217	5.97969	5.1685	0.00592	-0.07692	0.24	1, 41
	X1	MILEAGE	28972.0000	14631.3926	-0.02693					
F34	Y	HC	3.7242	1.1162	3.16094	1.0903	0.07172	0.26780	2.78	1, 36
	X1	MILEAGE	20216.6579	10729.0642	0.02786					
F35	Y	HC	3.7433	1.1243	3.25774	1.1161	0.03762	0.19395	1.68	1, 41
	X1	MILEAGE	28495.6977	12798.6456	0.01704					
F36	Y	HC	4.0400	1.0650	3.61797	1.0629	0.03252	0.18034	1.18	1, 39
	X1	MILEAGE	25693.5946	11692.4940	0.01645					
G51	Y	HC	3.8100	2.8100	4.31651	2.8431	0.00557	-0.07466	0.19	1, 34
	X1	MILEAGE	27817.2222	11540.3944	-0.01819					
G52	Y	HC	2.7010	1.0075	2.68821	1.0200	0.00004	0.00606	0.00	1, 38
	X1	MILEAGE	24404.1000	11718.8523	0.00092					
G53	Y	HC	5.9407	1.9190	3.74573	1.8771	0.06718	0.25919	2.81	1, 39

	X1	MILEAGE	26993.8780	10367.8901	0.04797						
G54	Y	HC	5.0984	1.8944	5.13269	1.9173	0.00006	-0.00757	0.00	1,	41
	X1	MILEAGE	29313.1395	12277.6826	-0.00117						
G55	Y	HC	3.9889	1.0980	4.17994	1.1094	0.00833	-0.09127	0.29	1,	34
	X1	MILEAGE	21328.3333	11188.8607	-0.00896						
G56	Y	HC	3.8153	0.9551	4.11231	0.9604	0.02377	-0.15418	0.68	1,	28
	X1	MILEAGE	24820.4667	12306.8716	-0.01197						
G61	Y	HC	3.0490	0.7226	3.77736	0.6743	0.15094	-0.38851	6.93	1,	39
	X1	MILEAGE	24676.4878	9511.1250	-0.02952						
G62	Y	HC	3.1622	0.6798	3.32616	0.6824	0.01821	-0.13494	0.70	1,	38
	X1	MILEAGE	26157.8750	14641.0603	-0.00627						
G63	Y	HC	4.1409	1.2615	4.40003	1.2759	0.00802	-0.08957	0.26	1,	32
	X1	MILEAGE	22936.4412	10001.6028	-0.01136						
G66	Y	HC	3.3500	0.8665	3.16896	0.8698	0.01701	0.13042	0.69	1,	40
	X1	MILEAGE	21101.7857	13125.1078	0.00861						
G67	Y	HC	3.3642	1.8256	2.08505	1.7582	0.09896	0.31457	3.73	1,	34
	X1	MILEAGE	29631.7500	13303.7610	0.04317						
G71	Y	HC	3.9515	1.8506	1.67078	1.3159	0.50968	0.71392	33.26	1,	32
	X1	MILEAGE	30009.5000	17381.7995	0.07601						
G72	Y	HC	3.5084	0.8164	3.28964	0.8182	0.02348	0.15322	0.84	1,	35
	X1	MILEAGE	33659.9189	19250.2929	0.00650						
G76	Y	HC	2.6440	0.7865	2.36963	0.7861	0.03028	0.17400	1.03	1,	33
	X1	MILEAGE	30692.1714	15307.8228	0.00894						
V81	Y	HC	2.8329	1.2601	1.56725	1.0734	0.29208	0.54044	16.50	1,	40
	X1	MILEAGE	24270.8571	13059.3965	0.05215						
V82	Y	HC	2.6920	1.7955	1.64889	1.7329	0.09301	0.30498	3.79	1,	37
	X1	MILEAGE	28165.2051	14784.6234	0.03704						

DISPLACEMENT CLASSES FOR KANSAS CITY MASS CO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y CO	34.0919	18.2445	17.94037	16.8323	0.17247	0.41529	7.29	1, 35
	X1 MILEAGE	21244.0811	9965.7694	0.76078					
C11	Y CO	31.8992	12.2439	32.79912	12.4061	0.00185	-0.04302	0.06	1, 35
	X1 MILEAGE	24581.8919	14388.7696	-0.03661					
C12	Y CO	43.0364	13.7627	38.99673	13.7928	0.02206	0.14852	0.83	1, 37
	X1 MILEAGE	30736.3077	15552.2859	0.13143					
C13	Y CO	54.1915	28.8877	51.95708	29.2399	0.00243	0.04933	0.09	1, 37
	X1 MILEAGE	30169.1795	19239.0967	0.07406					
C14	Y CO	65.8680	27.4220	59.78065	27.5849	0.01785	0.13360	0.60	1, 33
	X1 MILEAGE	26764.4000	16107.2622	0.22744					
F31	Y CO	39.0860	35.9154	36.63038	36.3904	0.00112	0.03347	0.04	1, 36
	X1 MILEAGE	28535.3421	13969.5495	0.08606					
F32	Y CO	23.8519	14.7760	13.40147	13.9561	0.12914	0.[illegible]56	6.08	1, 41
	X1 MILEAGE	16508.2558	8387.9351	0.63304					
F33	Y CO	30.3405	11.5358	34.95293	11.4351	0.04077	-0.20193	1.74	1, 41
	X1 MILEAGE	28972.0000	14631.3926	-0.15921					
F34	Y CO	26.4250	9.3154	21.75428	9.1034	0.07081	0.26609	2.74	1, 36
	X1 MILEAGE	20216.6579	10729.0642	0.23103					
F35	Y CO	37.8088	18.8832	39.39706	19.0984	0.00143	-0.03779	0.06	1, 41
	X1 MILEAGE	28495.6977	12798.6456	-0.05577					
F36	Y CO	60.3662	25.2581	41.07643	24.0196	0.12079	0.34754	4.81	1, 35
	X1 MILEAGE	25693.5946	11692.4940	0.75076					
G51	Y CO	45.3158	20.5429	33.15797	20.2048	0.06029	0.24554	2.18	1, 34
	X1 MILEAGE	27817.2222	11540.8944	0.43706					
G52	Y CO	36.0890	14.4709	42.02000	14.3733	0.03874	-0.19681	1.53	1, 38
	X1 MILEAGE	24404.1000	11718.8523	-0.24303					
G53	Y CO	43.7083	16.2666	32.34031	15.8693	0.07205	0.26842	3.03	1, 39

	X1	MILEAGE	26969.8780	10367.6901	0.42113						
654	Y	CO	73.5756	38.0303	35.78136	37.7450	0.03841	0.19598	1.64	1,	41
	X1	MILEAGE	29313.1395	12277.6826	0.60704						
655	Y	CO	53.1147	23.6761	61.12504	23.6404	0.03150	-0.17749	1.11	1,	34
	X1	MILEAGE	21328.3333	11188.8607	-0.37547						
656	Y	CO	51.5110	21.9969	54.75918	22.3262	0.00536	-0.07322	0.15	1,	28
	X1	MILEAGE	24820.4667	12306.8716	-0.13087						
661	Y	CO	36.4090	12.3127	37.53519	12.4618	0.00124	-0.03524	0.05	1,	39
	X1	MILEAGE	24676.4878	9511.1250	-0.04564						
662	Y	CO	38.9372	8.8643	38.98414	8.9802	0.00001	-0.00290	0.00	1,	38
	X1	MILEAGE	26157.8750	14641.0603	-0.00179						
663	Y	CO	56.1188	21.5490	56.01564	21.8831	0.00000	0.00206	0.00	1,	32
	X1	MILEAGE	22936.4412	10001.6028	0.00449						
666	Y	CO	50.5731	13.8999	54.21029	13.8850	0.02649	-0.16275	1.09	1,	40
	X1	MILEAGE	21101.7857	13125.1078	-0.17236						
667	Y	CO	53.7611	41.5838	29.47539	40.7147	0.06875	0.26221	2.51	1,	34
	X1	MILEAGE	29631.7500	13303.7610	0.81958						
671	Y	CO	47.8197	24.2368	45.21399	20.7108	0.29193	0.54030	13.19	1,	32
	X1	MILEAGE	30005.5000	17381.7995	0.75338						
672	Y	CO	56.0716	18.1609	57.54529	18.3987	0.00215	-0.04641	0.08	1,	35
	X1	MILEAGE	33659.9189	19250.2929	-0.04378						
676	Y	CO	34.8251	9.9753	29.64687	9.7801	0.06703	0.25891	2.37	1,	33
	X1	MILEAGE	30692.1714	15307.8228	0.16877						
V81	Y	CO	25.3314	7.4571	20.29100	7.0328	0.13227	0.36369	6.10	1,	40
	X1	MILEAGE	24270.8571	13059.3965	0.20767						
V82	Y	CO	18.8956	12.7256	15.70294	12.7841	0.01734	0.13170	0.65	1,	37
	X1	MILEAGE	28165.2051	14784.6234	0.11336						

560

DISPLACEMENT CLASSES FOR KANSAS CITY MASS NOX

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	NOX	5.6611	2.1832	8.25386	1.8387	0.31038	-0.55712	15.79	1, 35
	X1	MILEAGE	21244.0811	9965.7694	-0.12205					
C11	Y	NOX	6.0505	1.4657	6.01484	1.4864	0.00020	0.01425	0.01	1, 35
	X1	MILEAGE	24581.8919	14388.7696	0.00149					
C12	Y	NOX	6.2069	1.7865	8.13479	1.5168	0.29814	-0.54602	15.72	1, 37
	X1	MILEAGE	30736.3077	15552.2859	-0.06272					
C13	Y	NOX	6.6282	1.9786	6.26993	1.9920	0.01381	0.11753	0.50	1, 36
	X1	MILEAGE	29734.1579	19301.9876	0.01209					
C14	Y	NOX	5.0606	2.5187	6.54031	2.3915	0.12501	-0.35356	4.71	1, 33
	X1	MILEAGE	26784.4000	16107.2622	-0.05529					
F31	Y	NOX	6.2608	2.5229	5.10778	2.4929	0.05006	0.22373	1.90	1, 36
	X1	MILEAGE	28535.3421	13969.5495	0.04041					
F32	Y	NOX	5.8607	2.1344	6.94293	2.0873	0.06637	-0.25763	2.91	1, 41
	X1	MILEAGE	16508.2558	8387.9351	-0.06596					
F33	Y	NOX	6.7891	1.7041	8.15457	1.3772	0.16375	-0.40466	8.03	1, 41
	X1	MILEAGE	28972.0000	14631.3926	-0.04719					
F34	Y	NOX	6.5945	1.6620	6.75995	1.6826	0.00279	-0.05284	0.10	1, 36
	X1	MILEAGE	20216.6579	10729.0642	-0.00815					
F35	Y	NOX	7.0640	1.7440	7.20769	1.7639	0.00137	-0.03702	0.06	1, 41
	X1	MILEAGE	28495.5977	12798.6456	-0.00504					
F36	Y	NOX	4.7114	1.3200	5.91822	1.2173	0.17311	-0.41607	7.33	1, 35
	X1	MILEAGE	25693.5946	11692.4940	-0.04697					
G51	Y	NOX	4.1475	1.1678	5.05654	1.1213	0.10430	-0.32298	3.96	1, 34
	X1	MILEAGE	27817.2222	11540.8944	-0.03268					
G52	Y	NOX	4.8090	1.3109	4.36280	1.3102	0.02671	0.16344	1.04	1, 38
	X1	MILEAGE	24404.1000	11718.8523	0.01828					
G53	Y	NOX	6.0132	1.3662	6.58705	1.3654	0.02603	-0.16134	1.04	1, 39

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	X1	MILEAGE	26995.8780	10367.8401	-0.02196						
G54	Y	NOX	4.2400	1.9435	5.69263	1.8682	0.09800	-0.31306	4.45	1,	41
	X1	MILEAGE	29313.1395	12277.6826	-0.04958						
G55	Y	NOX	6.4242	1.8507	5.44589	1.8041	0.07689	0.27730	2.83	1,	34
	X1	MILEAGE	21328.3333	11188.8607	0.04587						
G56	Y	NOX	4.4967	1.2029	5.30313	1.1546	0.11051	-0.33243	3.48	1,	28
	X1	MILEAGE	24820.4667	12306.8716	-0.03249						
G61	Y	NOX	5.7529	1.4899	6.35092	1.4908	0.02392	-0.15467	0.96	1,	39
	X1	MILEAGE	24676.4878	9511.1250	-0.02423						
G62	Y	NOX	5.9050	1.1541	6.83365	1.0439	0.20284	-0.45038	9.67	1,	38
	X1	MILEAGE	26157.8750	14441.0603	-0.03550						
G63	Y	NOX	5.6871	1.5466	6.08215	1.5608	0.01241	-0.11139	0.40	1,	32
	X1	MILEAGE	22936.4412	10001.6028	-0.01729						
G64	Y	NOX	4.7764	0.8618	5.11805	0.8455	0.06080	-0.24657	2.59	1,	40
	X1	MILEAGE	21101.7857	13125.1078	-0.01619						
G67	Y	NOX	5.3056	2.0055	6.88426	1.9034	0.12491	-0.35343	4.85	1,	34
	X1	MILEAGE	29631.7500	13303.7610	-0.05398						
G71	Y	NOX	5.1744	1.6361	6.52534	1.4591	0.22879	-0.47832	9.49	1,	32
	X1	MILEAGE	30005.5000	17381.7995	-0.04507						
G72	Y	NOX	5.9992	1.8611	5.38821	1.8539	0.03525	0.18775	1.28	1,	35
	X1	MILEAGE	33659.9189	19250.2929	0.01819						
G76	Y	NOX	6.8291	1.8287	7.77191	1.7938	0.06611	-0.25712	2.34	1,	33
	X1	MILEAGE	30692.1714	15307.8228	-0.03072						
V81	Y	NOX	3.0302	0.6802	3.56691	0.6235	0.18022	-0.42452	8.79	1,	40
	X1	MILEAGE	24270.8571	13059.3965	-0.02211						
V82	Y	NOX	3.5400	1.7203	4.64789	1.6408	0.11427	-0.33804	4.77	1,	37
	X1	MILEAGE	28165.2051	14784.4234	-0.03933						

DISPLACEMENT CLASSES FOR KANSAS CITY MASS NOXC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y NOXC	5.1624	2.1001	7.33023	1.8836	0.23447	-0.48422	10.72	1, 35
	X1 MILEAGE	21244.0811	9965.7694	-0.10204					
C11	Y NOXC	5.4157	1.1829	5.23167	1.1947	0.00829	0.09105	0.29	1, 35
	X1 MILEAGE	24581.8919	14388.7696	0.00749					
C12	Y NOXC	5.6715	1.6416	7.21247	1.4640	0.22558	-0.47496	10.78	1, 37
	X1 MILEAGE	30736.3077	15552.2859	-0.05013					
C13	Y NOXC	6.0108	1.7686	5.51727	1.7634	0.03282	0.18116	1.22	1, 36
	X1 MILEAGE	29734.1579	19301.9876	0.01660					
C14	Y NOXC	4.6429	2.4044	5.74414	2.3461	0.07598	-0.27564	2.71	1, 33
	X1 MILEAGE	26764.4000	16107.2622	-0.04115					
F31	Y NOXC	5.5703	2.1976	4.49105	2.1626	0.05780	0.24041	2.21	1, 36
	X1 MILEAGE	28535.3421	13969.5495	0.03787					
F32	Y NOXC	5.3558	1.9936	5.79687	2.0050	0.01264	-0.11241	0.52	1, 41
	X1 MILEAGE	16508.2558	8387.9351	-0.02672					
F33	Y NOXC	6.2684	1.5690	7.27993	1.5015	0.10601	-0.32560	4.86	1, 41
	X1 MILEAGE	28972.0000	14631.3926	-0.03492					
F34	Y NOXC	5.9653	1.5084	5.88303	1.5286	0.00084	0.02893	0.03	1, 36
	X1 MILEAGE	20216.6579	10729.0642	0.00407					
F35	Y NOXC	6.5012	1.5635	6.75219	1.5783	0.00520	-0.07211	0.21	1, 41
	X1 MILEAGE	28495.6977	12798.6456	-0.00891					
F36	Y NOXC	4.4238	1.1861	5.25057	1.1408	0.10063	-0.31722	3.92	1, 35
	X1 MILEAGE	25693.5946	11692.4940	-0.03219					
G51	Y NOXC	3.6131	0.9846	4.25257	0.9620	0.07260	-0.26945	2.66	1, 34
	X1 MILEAGE	27817.2222	11540.8944	-0.02299					
G52	Y NOXC	4.3427	1.1329	4.02383	1.1372	0.01827	0.13518	0.71	1, 38
	X1 MILEAGE	24404.1000	11718.8523	0.01307					
G53	Y NOXC	5.5690	1.3513	5.78687	1.3658	0.00383	-0.06192	0.15	1, 39

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	X1	MILEAGE	26993.8780	10367.8901	-0.00807						
G54	Y	NOXC	3.8219	1.6929	5.10704	1.6245	0.10111	-0.31797	4.61	1.	41
	X1	MILEAGE	29313.1395	12277.6826	-0.04384						
G55	Y	NOXC	5.8378	1.7794	4.90339	1.7355	0.07590	0.27550	2.79	1.	34
	X1	MILEAGE	21328.3333	11188.8607	0.04381						
G56	Y	NOXC	4.0180	1.0772	4.42708	1.0766	0.03546	-0.18831	1.03	1.	28
	X1	MILEAGE	24820.4667	12306.8716	-0.01649						
G61	Y	NOXC	5.1924	1.4561	5.60577	1.4658	0.01197	-0.10941	0.47	1.	39
	X1	MILEAGE	24676.4878	9511.1250	-0.01679						
G62	Y	NOXC	5.3740	1.0325	6.18262	0.9402	0.19214	-0.43833	9.04	1.	38
	X1	MILEAGE	26157.8750	14641.0603	-0.03091						
G63	Y	NOXC	5.1406	1.5561	5.31865	1.5783	0.00249	-0.04989	0.08	1.	32
	X1	MILEAGE	22936.4412	10001.6028	-0.00778						
G64	Y	NOXC	4.3676	0.7415	4.53417	0.7433	0.01952	-0.13971	0.88	1.	48
	X1	MILEAGE	21181.7857	13125.1078	-0.00789						
G67	Y	NOXC	4.9847	1.8340	5.78543	1.8247	0.03842	-0.19601	1.36	1.	34
	X1	MILEAGE	29631.7500	13303.7610	-0.02702						
G71	Y	NOXC	4.7526	1.5733	5.89577	1.4493	0.17715	-0.42089	6.89	1.	32
	X1	MILEAGE	30005.5000	17381.7995	-0.03818						
G72	Y	NOXC	5.3889	1.5220	4.79289	1.5044	0.05016	0.22396	1.89	1.	35
	X1	MILEAGE	33659.9189	19250.2929	0.01771						
G76	Y	NOXC	6.2311	1.6940	6.78109	1.6968	0.02622	-0.16192	0.89	1.	33
	X1	MILEAGE	30492.1714	15307.8228	-0.01792						
V81	Y	NOXC	2.7793	0.6020	3.20787	0.5630	0.14674	-0.38306	6.88	1.	48
	X1	MILEAGE	24270.8571	13059.3965	-0.01766						
V82	Y	NOXC	3.1990	1.6396	4.12984	1.5861	0.08882	-0.29803	3.61	1.	37
	X1	MILEAGE	28165.2051	14784.6234	-0.03305						

TABLE G-8

Houston

By Class

Mass

HC

CO

NO_x

NO_xC

DISPLACEMENT CLASSES FOR HOUSTON MASS HC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	HC	3.3369	1.1413	3.37979	1.1578	0.00628	-0.01674	0.01	1, 34
	X1	MILEAGE	29449.5556	13164.9850	-0.00145					
C11	Y	HC	3.4010	1.9595	1.17418	1.5174	0.41612	0.64507	26.37	1, 37
	X1	MILEAGE	29890.3077	16966.7972	0.07490					
C12	Y	HC	4.6490	4.2940	3.60291	4.3017	0.02152	0.14669	0.86	1, 39
	X1	MILEAGE	33062.4634	19900.8663	0.03165					
C13	Y	HC	4.1070	1.5071	3.94550	1.5266	0.00795	0.05846	0.09	1, 35
	X1	MILEAGE	37560.3514	17686.6340	0.00439					
C14	Y	HC	4.3392	1.9320	4.35769	1.9586	0.00002	-0.00494	0.00	1, 36
	X1	MILEAGE	34016.0000	17668.7492	-0.00094					
F31	Y	HC	3.3784	2.1273	1.94347	2.0488	0.09756	0.31235	3.89	1, 36
	X1	MILEAGE	32810.5000	15193.1111	0.04373					
F32	Y	HC	2.9705	0.9761	2.61644	0.9595	0.06047	0.24591	2.25	1, 35
	X1	MILEAGE	10976.9189	12863.2051	0.01868					
F33	Y	HC	5.0064	2.6174	4.11070	2.6229	0.02448	0.15647	0.85	1, 34
	X1	MILEAGE	31607.3611	14488.6366	0.02827					
F34	Y	HC	4.2644	1.4855	4.87115	1.4804	0.03528	-0.18782	1.24	1, 34
	X1	MILEAGE	23551.9722	10831.0929	-0.02576					
F35	Y	HC	3.8157	1.8454	4.17572	1.8659	0.00688	-0.07798	0.21	1, 35
	X1	MILEAGE	35592.6757	14226.0980	-0.01012					
F36	Y	HC	4.7464	3.0913	3.44141	3.0783	0.03940	0.19850	1.27	1, 31
	X1	MILEAGE	29759.2121	13993.7887	0.04385					
G31	Y	HC	3.2953	1.0476	2.75799	1.0361	0.04823	0.21960	1.82	1, 36
	X1	MILEAGE	34191.7105	14638.5158	0.01572					
G32	Y	HC	2.6274	1.6135	2.50096	1.6349	0.00101	0.03178	0.04	1, 36
	X1	MILEAGE	31243.1053	12816.2364	0.00407					
G33	Y	HC	5.0172	2.5724	1.04812	1.6250	0.61119	0.78179	59.73	1, 38

	X1	MILEAGE	28898.9500	14642.2734	0.13719						
G54	Y	HC	6.1247	3.2234	5.80478	3.2684	0.00126	0.03552	0.04	1,	34
	X1	MILEAGE	35866.1111	12839.5179	0.00892						
G55	Y	HC	4.0676	1.2959	3.35660	1.2659	0.06902	0.26271	2.97	1,	40
	X1	MILEAGE	29652.1667	14197.9863	0.02399						
G56	Y	HC	7.4283	10.5755	2.52397	10.5324	0.03731	0.19315	1.28	1,	33
	X1	MILEAGE	29875.1143	12443.1386	0.16416						
G61	Y	HC	3.3685	0.5086	3.84572	0.5692	0.09309	-0.30510	3.28	1,	32
	X1	MILEAGE	27242.9118	10262.7070	-0.01750						
G62	Y	HC	3.2468	0.7634	3.99800	0.7257	0.12073	-0.34746	4.94	1,	36
	X1	MILEAGE	30035.1579	10605.8158	-0.02501						
G63	Y	HC	4.7537	1.4341	5.64787	1.4045	0.06912	-0.26290	2.45	1,	33
	X1	MILEAGE	35591.4286	15007.2281	-0.02512						
G66	Y	HC	3.9057	1.5572	3.12180	1.5466	0.03884	0.19709	1.54	1,	38
	X1	MILEAGE	28236.8750	11054.2735	0.02776						
G67	Y	HC	3.2997	1.3095	2.17587	1.2496	0.11968	0.34595	3.94	1,	29
	X1	MILEAGE	31519.4194	12705.4819	0.03569						
G71	Y	HC	3.5134	0.6671	3.58302	0.6758	0.00138	-0.03710	0.05	1,	36
	X1	MILEAGE	37929.2632	13489.6446	-0.00184						
G72	Y	HC	3.3926	0.6218	3.24598	0.6247	0.02141	0.14631	0.70	1,	32
	X1	MILEAGE	24438.5882	15160.4528	0.00600						
G76	Y	HC	2.5800	1.4413	1.38677	1.1632	0.36725	0.60601	19.73	1,	34
	X1	MILEAGE	25122.1667	18388.9311	0.04750						
V81	Y	HC	4.6453	4.0277	0.36080	3.6298	0.20979	0.45803	9.56	1,	36
	X1	MILEAGE	29845.0789	12850.6848	0.14356						
V82	Y	HC	3.5327	3.4281	-0.47865	2.5486	0.45794	0.67671	23.65	1,	28
	X1	MILEAGE	27468.7667	15885.6443	0.14609						

DISPLACEMENT CLASSES FOR HOUSTON MASS CO

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	CO	34.5033	17.3119	41.96587	17.2354	0.63713	-0.19270	1.31	1, 34
	X1	MILEAGE	29449.5556	13164.9850	-0.25340					
C11	Y	CO	42.5807	22.6877	25.68497	20.8369	0.17870	0.42272	8.05	1, 37
	X1	MILEAGE	29890.3077	16966.7972	0.56596					
C12	Y	CO	45.2778	25.0968	40.55125	25.2527	0.01285	0.11336	0.51	1, 39
	X1	MILEAGE	33062.4634	19900.8663	0.14296					
C13	Y	CO	48.4389	27.3617	45.70979	27.7095	0.00214	0.04622	0.08	1, 36
	X1	MILEAGE	37895.0263	17561.8261	0.07207					
C14	Y	CO	68.7892	42.9643	56.43556	43.0684	0.02231	0.14935	0.82	1, 36
	X1	MILEAGE	34016.0000	17668.7492	0.36317					
F31	Y	CO	22.8524	8.5574	23.18213	8.6741	0.00032	-0.01784	0.01	1, 36
	X1	MILEAGE	32810.5000	15193.1111	-0.01095					
F32	Y	CO	37.4919	24.4091	24.90139	23.1929	0.12225	0.34964	4.87	1, 35
	X1	MILEAGE	18976.9189	12863.2051	0.66347					
F33	Y	CO	33.1292	15.1992	22.12572	14.5516	0.10958	0.33103	4.18	1, 34
	X1	MILEAGE	31687.3611	14488.6366	0.34726					
F34	Y	CO	41.7483	17.8408	30.08349	17.2636	0.09041	0.30068	3.38	1, 34
	X1	MILEAGE	23551.9722	10831.0929	0.49528					
F35	Y	CO	40.4932	20.6910	38.58665	20.9702	0.00136	0.03683	0.05	1, 35
	X1	MILEAGE	35592.6757	14226.0980	0.05357					
F36	Y	CO	72.7388	31.2934	38.47613	27.2564	0.26507	0.51485	11.18	1, 31
	X1	MILEAGE	29759.2121	13993.7887	1.15199					
G51	Y	CO	36.9668	17.5401	22.30335	16.6041	0.12810	0.35792	5.29	1, 36
	X1	MILEAGE	34191.7105	14638.5158	0.42886					
G52	Y	CO	28.4010	12.9821	26.86129	13.1460	0.00229	0.04789	0.08	1, 36
	X1	MILEAGE	31243.1053	12616.2364	0.04928					
G53	Y	CO	46.9500	13.3736	34.32741	13.1150	0.06295	0.25098	2.55	1, 38

	X1	MILEAGE	28898.9500	14642.2734	0.22916						
G56	Y	CO	82.7872	36.9659	109.93507	36.1870	0.06908	-0.26282	2.52	1,	34
	X1	MILEAGE	35866.1111	12835.5179	-0.75692						
G55	Y	CO	48.6712	18.0893	35.34790	17.1373	0.12437	0.35266	5.68	1,	40
	X1	MILEAGE	29652.1667	14197.9863	0.44932						
G54	Y	CO	62.8823	31.5661	45.37805	31.1745	0.05334	0.23096	1.86	1,	33
	X1	MILEAGE	29875.1143	12443.1386	0.58591						
G61	Y	CO	39.3768	13.3454	35.70170	13.4792	0.01076	0.10374	0.35	1,	32
	X1	MILEAGE	27242.9118	10262.7070	0.13489						
G62	Y	CO	42.1184	13.0381	45.58416	13.1596	0.00881	-0.09386	0.32	1,	36
	X1	MILEAGE	30035.1579	10605.8158	-0.11540						
G63	Y	CO	68.0992	33.0569	37.09032	30.5204	0.17193	0.41465	7.06	1,	34
	X1	MILEAGE	34869.0000	15413.3265	0.88929						
G66	Y	CO	56.5795	17.3358	48.36596	17.2577	0.03440	0.18548	1.35	1,	38
	X1	MILEAGE	28236.8750	11054.2735	0.29088						
G67	Y	CO	55.6761	35.2933	17.13256	32.2312	0.19380	0.44022	6.97	1,	29
	X1	MILEAGE	31519.4194	12705.4819	1.22285						
G71	Y	CO	74.4603	20.0056	73.90365	20.2806	0.00010	0.00989	0.00	1,	36
	X1	MILEAGE	37929.2632	13489.6446	0.01467						
G72	Y	CO	52.2520	14.0166	47.86820	13.9662	0.03638	0.19074	1.25	1,	33
	X1	MILEAGE	24496.1429	14939.7218	0.17896						
G76	Y	CO	40.3122	17.5046	21.09101	10.5663	0.64604	0.80376	62.06	1,	34
	X1	MILEAGE	25122.1667	18388.9311	0.76511						
V81	Y	CO	33.1684	20.3667	21.45499	20.0045	0.06133	0.24764	2.35	1,	36
	X1	MILEAGE	29845.0789	12850.6848	0.39248						
V82	Y	CO	27.1153	21.6638	15.56610	20.9733	0.09505	0.30831	2.94	1,	28
	X1	MILEAGE	27468.7667	15885.6443	0.42045						

DISPLACEMENT CLASSES FOR HOUSTON MASS NOX

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	NOX	4.2478	1.3215	4.98456	1.2985	0.06211	-0.24923	2.25	1, 34
	X1	MILEAGE	29449.5556	13164.9850	-0.02502					
C11	Y	NOX	5.0961	2.1838	6.64366	2.0402	0.15207	-0.38997	6.10	1, 34
	X1	MILEAGE	31661.5833	17092.7030	-0.04987					
C12	Y	NOX	5.1259	1.9973	5.61784	2.0051	0.02016	-0.14198	0.72	1, 35
	X1	MILEAGE	34637.2162	19967.1877	-0.01420					
C13	Y	NOX	5.4520	1.8954	5.62359	1.9224	0.00158	-0.03975	0.05	1, 33
	X1	MILEAGE	39461.1714	17326.2760	-0.00499					
C14	Y	NOX	3.8346	1.7420	4.48696	1.7333	0.03740	-0.19340	1.36	1, 35
	X1	MILEAGE	34589.4324	17759.7898	-0.01897					
F31	Y	NOX	6.2047	2.0464	7.00618	2.0402	0.03448	-0.18568	1.21	1, 34
	X1	MILEAGE	32789.1667	15545.9866	-0.02444					
F32	Y	NOX	4.0511	2.1045	5.44944	1.9057	0.20285	-0.45039	8.91	1, 35
	X1	MILEAGE	18976.9189	12863.2051	-0.07360					
F33	Y	NOX	6.4735	1.7389	7.69031	1.6664	0.10948	-0.33087	3.93	1, 32
	X1	MILEAGE	31515.0294	14902.3082	-0.03861					
F34	Y	NOX	5.1985	2.0883	5.93603	2.0936	0.02536	-0.15923	0.83	1, 32
	X1	MILEAGE	24098.4412	10865.8250	-0.03060					
F35	Y	NOX	4.8385	1.6739	5.40120	1.6843	0.01819	-0.13486	0.59	1, 32
	X1	MILEAGE	36079.2353	14474.7096	-0.01560					
F36	Y	NOX	3.9831	1.6060	6.15390	1.3445	0.32417	-0.56936	12.95	1, 27
	X1	MILEAGE	30073.8276	12669.9251	-0.07217					
G51	Y	NOX	4.2976	1.6152	5.09129	1.6027	0.04272	-0.20669	1.56	1, 35
	X1	MILEAGE	34642.2703	14570.8650	-0.02291					
G52	Y	NOX	4.1500	1.6079	5.71873	1.5032	0.15027	-0.38765	6.19	1, 35
	X1	MILEAGE	31625.0000	12565.6197	-0.04960					
G53	Y	NOX	5.1879	1.4954	5.36456	1.5160	0.00348	-0.05899	0.11	1, 32

D-57
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	X1	MILEAGE	29855.9412	14912.3063	-0.00597						
G54	Y	NOX	2.7403	1.3213	1.47519	1.2674	0.10874	0.32976	3.78	1,	31
	X1	MILEAGE	34759.8182	11971.1009	0.03640						
G55	Y	NOX	5.8620	1.8411	6.68214	1.8200	0.04782	-0.21867	1.91	1,	38
	X1	MILEAGE	29627.4500	14543.7022	-0.02768						
G56	Y	NOX	3.5282	1.8766	4.95897	1.8035	0.10437	-0.32306	3.73	1,	32
	X1	MILEAGE	29690.0000	12581.2509	-0.04819						
G61	Y	NOX	5.7761	1.7049	7.61519	1.5841	0.16547	-0.40678	5.75	1,	29
	X1	MILEAGE	27457.1613	10354.4500	-0.06698						
G62	Y	NOX	5.2397	1.8688	6.86699	1.8139	0.08565	-0.29266	3.09	1,	33
	X1	MILEAGE	29815.0571	10021.0071	-0.05498						
G63	Y	NOX	4.7883	2.0152	6.26265	1.9396	0.10087	-0.31761	3.70	1,	33
	X1	MILEAGE	35359.7714	15350.3142	-0.04170						
G66	Y	NOX	3.7597	1.3235	3.97070	1.3390	0.00413	-0.06424	0.15	1,	36
	X1	MILEAGE	28003.5526	11285.5672	-0.00753						
G67	Y	NOX	4.5800	1.8353	7.37183	1.4608	0.38830	-0.62313	17.77	1,	28
	X1	MILEAGE	31544.3667	12921.9132	-0.08850						
G71	Y	NOX	3.7181	1.0798	4.14495	1.0848	0.01962	-0.14006	0.68	1,	34
	X1	MILEAGE	38462.0000	13626.5620	-0.01110						
G72	Y	NOX	4.9994	1.3011	6.12211	1.1373	0.26055	-0.51044	10.57	1,	30
	X1	MILEAGE	24550.9375	14522.6451	-0.04573						
G76	Y	NOX	5.6558	1.4928	6.60921	1.3389	0.21854	-0.46748	9.51	1,	34
	X1	MILEAGE	25122.1667	18388.9311	-0.03795						
V81	Y	NOX	2.4503	0.9420	3.46047	0.8669	0.17959	-0.42378	6.79	1,	31
	X1	MILEAGE	31653.0000	12509.1878	-0.03191						
V82	Y	NOX	2.4371	1.0671	3.18123	0.9895	0.17208	-0.41483	5.40	1,	26
	X1	MILEAGE	27647.1429	16448.3849	-0.02691						

571A

DISPLACEMENT CLASSES FOR HOUSTON MASS NOXC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	NOXC	4.5461	1.3837	5.35436	1.3552	0.06818	-0.26112	2.49	1, 34
	X1	MILEAGE	29449.5556	13164.9850	-0.02745					
C11	Y	NOXC	5.4067	2.2713	6.96905	2.1330	0.14328	-0.37853	5.69	1, 34
	X1	MILEAGE	31061.5833	17092.7030	-0.05030					
C12	Y	NOXC	5.4559	2.0713	5.89170	2.0852	0.01471	-0.12127	0.52	1, 35
	X1	MILEAGE	34637.2162	19967.1877	-0.01258					
C13	Y	NOXC	5.7029	1.7546	5.56135	1.7799	0.00125	0.03541	0.04	1, 33
	X1	MILEAGE	39461.1714	17326.2760	0.00359					
C14	Y	NOXC	4.1408	1.9099	4.76630	1.9091	0.02860	-0.16913	1.03	1, 35
	X1	MILEAGE	34389.4324	17759.7898	-0.01819					
F31	Y	NOXC	6.7817	2.3102	7.52750	2.3163	0.02343	-0.15308	0.82	1, 34
	X1	MILEAGE	32789.1667	15545.9866	-0.02270					
F32	Y	NOXC	4.1854	2.1307	5.55135	1.9462	0.18884	-0.43456	8.15	1, 35
	X1	MILEAGE	18976.9189	12863.2051	-0.07198					
F33	Y	NOXC	6.9638	1.8771	7.96000	1.6345	0.07889	-0.28087	2.74	1, 32
	X1	MILEAGE	31515.0294	14902.3082	-0.03161					
F34	Y	NOXC	5.5844	2.2705	6.31288	2.2814	0.02093	-0.14467	0.68	1, 32
	X1	MILEAGE	24098.4412	10865.8250	-0.03029					
F35	Y	NOXC	5.1229	1.6981	5.56445	1.7150	0.01088	-0.10431	0.35	1, 32
	X1	MILEAGE	36079.2353	14474.7096	-0.01274					
F36	Y	NOXC	4.2293	1.6474	6.52239	1.3589	0.34387	-0.58641	14.15	1, 27
	X1	MILEAGE	30073.8276	12669.9251	-0.07625					
G51	Y	NOXC	4.6105	1.6933	5.34440	1.6886	0.03323	-0.18229	1.20	1, 35
	X1	MILEAGE	34642.2703	14570.8650	-0.02119					
G52	Y	NOXC	4.4403	1.6568	6.25397	1.5131	0.18918	-0.43495	8.17	1, 35
	X1	MILEAGE	31625.0000	12565.6197	-0.05735					

	X1	MILEAGE	29855.9412	14912.3063	0.00101						
G54	Y	NOXC	2.9103	1.2940	1.61107	1.2336	0.11957	0.34578	4.21	1,	31
	X1	MILEAGE	34759.8182	11971.1009	0.03738						
G55	Y	NOXC	6.2175	1.9390	7.00738	1.9246	0.03999	-0.19997	1.58	1,	38
	X1	MILEAGE	29627.4500	14543.7022	-0.02666						
G56	Y	NOXC	3.8721	2.0298	5.53309	1.9333	0.12025	-0.34677	4.37	1,	32
	X1	MILEAGE	29690.0000	12581.2509	-0.05599						
G61	Y	NOXC	6.1110	1.5731	7.94651	1.4368	0.19361	-0.44001	6.96	1,	29
	X1	MILEAGE	27457.1613	10354.4500	-0.06685						
G62	Y	NOXC	5.4177	1.8344	6.76601	1.8043	0.06103	-0.24703	2.14	1,	33
	X1	MILEAGE	29815.0571	10021.0071	-0.04522						
G63	Y	NOXC	5.1931	2.1943	6.80397	2.1111	0.10156	-0.31869	3.73	1,	33
	X1	MILEAGE	35359.7714	15350.3142	-0.04556						
G66	Y	NOXC	3.9676	1.2621	3.98202	1.2795	0.00002	-0.00458	0.00	1,	36
	X1	MILEAGE	28003.5526	11285.5672	-0.00051						
G67	Y	NOXC	4.7930	1.8290	7.65742	1.4278	0.41159	-0.64155	19.59	1,	28
	X1	MILEAGE	31544.3667	12921.9132	-0.09081						
G71	Y	NOXC	4.0097	1.1849	4.45312	1.1916	0.01758	-0.13257	0.61	1,	34
	X1	MILEAGE	38462.0000	13626.5620	-0.01153						
G72	Y	NOXC	5.2300	1.2970	6.31308	1.1460	0.24442	-0.49439	9.70	1,	30
	X1	MILEAGE	24550.9375	14522.6451	-0.04415						
G76	Y	NOXC	6.0853	1.4249	7.01373	1.2707	0.22748	-0.47695	10.01	1,	34
	X1	MILEAGE	25122.1667	18388.9311	-0.03696						
Y81	Y	NOXC	2.6082	0.9423	3.51089	0.8861	0.14334	-0.37861	5.19	1,	31
	X1	MILEAGE	31653.0000	12509.1878	-0.02852						
Y82	Y	NOXC	2.5529	1.1178	3.40818	1.0142	0.20723	-0.45523	6.80	1,	26
	X1	MILEAGE	27647.1429	16448.3849	-0.03094						

TABLE G-9

Combined Cities

By Class

Mass

HC

CO

NO_x

NO_xC

DISPLACEMENT CLASSES FOR COMBINED CITIES MASS HC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y HC	3.5040	1.1974	3.42019	1.2051	0.00116	0.03401	0.08	1, 71
	X1 MILEAGE	25290.6164	12287.0888	0.00331					
C11	Y HC	3.1603	1.5772	1.88449	1.4010	0.22146	0.47060	21.05	1, 74
	X1 MILEAGE	27305.9474	15886.0527	0.04672					
C12	Y HC	4.1787	3.1974	3.38022	3.1864	0.01947	0.13953	1.55	1, 78
	X1 MILEAGE	31928.4625	17839.3422	0.02501					
C13	Y HC	4.4832	3.3028	4.51566	3.3250	0.00003	-0.00539	0.00	1, 74
	X1 MILEAGE	33771.4079	18749.6942	-0.00096					
C14	Y HC	4.6814	3.1147	4.00299	3.1128	0.01507	0.12276	1.09	1, 71
	X1 MILEAGE	30539.2055	17211.9123	0.02221					
F31	Y HC	3.1309	1.5988	2.27121	1.5556	0.06601	0.25692	5.23	1, 74
	X1 MILEAGE	30672.9211	14655.3668	0.02809					
F32	Y HC	2.8540	0.8520	2.55012	0.8371	0.04669	0.21609	3.82	1, 78
	X1 MILEAGE	17650.0125	10692.9807	0.01772					
F33	Y HC	5.1115	4.1483	5.19343	4.1750	0.00009	-0.00947	0.01	1, 77
	X1 MILEAGE	30209.3797	14536.8493	-0.00271					
F34	Y HC	3.9870	1.3279	3.86928	1.3358	0.00194	0.04399	0.14	1, 72
	X1 MILEAGE	21839.2432	10835.4846	0.00539					
F35	Y HC	3.7767	1.4917	3.66415	1.5005	0.00108	0.03291	0.08	1, 78
	X1 MILEAGE	31778.0500	13856.0623	0.00354					
F36	Y HC	4.3730	2.2693	3.39691	2.2393	0.04037	0.20091	2.86	1, 68
	X1 MILEAGE	27610.2429	12896.7315	0.03535					
G51	Y HC	3.5461	2.0998	3.59478	2.1143	0.00010	-0.01008	0.01	1, 72
	X1 MILEAGE	31090.6081	13518.8846	-0.00157					
G52	Y HC	2.6651	1.3291	2.62649	1.3377	0.00017	0.01316	0.01	1, 76
	X1 MILEAGE	27735.9231	12564.9746	0.00139					
G53	Y HC	5.0291	2.2511	2.05951	1.8193	0.35501	0.59583	43.48	1, 79

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	X1	MILEAGE	27934.6943	12616.7837	0.10691						
654	Y	HC	3.5661	2.6191	5.12719	2.6301	0.00447	0.06682	0.35	1,	77
	X1	MILEAGE	32299.3038	12879.5433	0.01399						
655	Y	HC	4.0313	1.2016	3.71461	1.1980	0.01894	0.13763	1.47	1,	76
	X1	MILEAGE	25810.3974	13479.0134	0.01227						
656	Y	HC	5.7608	7.9450	2.73382	7.8864	0.03011	0.17351	1.96	1,	63
	X1	MILEAGE	27542.2000	12543.2461	0.10990						
661	Y	HC	3.1939	0.6799	3.73947	0.6516	0.09404	-0.30666	7.58	1,	75
	X1	MILEAGE	25839.9333	9875.2665	-0.02111						
662	Y	HC	3.2035	0.7183	3.53192	0.7068	0.04424	-0.21034	3.52	1,	76
	X1	MILEAGE	28046.8077	12900.6722	-0.01171						
663	Y	HC	4.4517	1.3769	4.65696	1.3835	0.00520	-0.07212	0.35	1,	67
	X1	MILEAGE	29359.6377	14204.6064	-0.00699						
666	Y	HC	3.6211	1.2750	3.09711	1.2542	0.04441	0.21074	3.72	1,	80
	X1	MILEAGE	24582.3171	12605.9520	0.02192						
667	Y	HC	3.3343	1.5962	2.13014	1.5235	0.10283	0.32067	7.45	1,	65
	X1	MILEAGE	30505.1493	12966.6723	0.03947						
671	Y	HC	3.7203	1.3683	2.41091	1.2349	0.19694	0.44378	17.17	1,	70
	X1	MILEAGE	34187.4861	15846.8723	0.03897						
672	Y	HC	3.4530	0.7270	3.25594	0.7221	0.02752	0.16589	1.95	1,	69
	X1	MILEAGE	29244.0704	17901.3143	0.00674						
676	Y	HC	2.6115	1.1576	1.73566	1.0335	0.21433	0.46296	18.82	1,	69
	X1	MILEAGE	27867.9437	17051.6577	0.03149						
V81	Y	HC	3.6937	3.0416	0.86246	2.7247	0.20771	0.45575	20.45	1,	78
	X1	MILEAGE	26918.6125	15179.6402	0.10518						
V82	Y	HC	3.0575	2.6438	0.62216	2.3046	0.25129	0.50129	22.49	1,	67
	X1	MILEAGE	27862.4058	15162.2164	0.08741						

DISPLACEMENT CLASSES FOR COMBINED CITIES PASS CO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y CO	34.2948	17.6681	31.40330	17.7358	0.00632	0.07951	0.45	1, 71
	X1 MILEAGE	25290.6164	12287.0888	0.11499					
C11	Y CO	37.3805	19.0168	27.30036	18.2118	0.09510	0.30838	7.78	1, 74
	X1 MILEAGE	27305.9474	15884.0527	0.36919					
C12	Y CO	44.1851	20.2803	39.64254	20.2495	0.01566	0.12515	1.24	1, 78
	X1 MILEAGE	31928.4625	17839.3422	0.14277					
C13	Y CO	51.3526	28.1089	50.06582	28.2867	0.00064	0.02521	0.05	1, 75
	X1 MILEAGE	33981.9351	18717.3217	0.03796					
C14	Y CO	67.3886	36.1367	57.95741	35.9944	0.02164	0.14709	1.57	1, 71
	X1 MILEAGE	30539.2055	17211.9123	0.30882					
F31	Y CO	30.9692	27.1891	32.46032	27.3628	0.00069	-0.02620	0.05	1, 74
	X1 MILEAGE	30672.9211	14655.3668	-0.04861					
F32	Y CO	30.1604	20.8426	17.47449	19.4977	0.13597	0.36874	12.27	1, 78
	X1 MILEAGE	17650.0125	10692.9807	0.71879					
F33	Y CO	31.6113	13.3143	29.28661	13.3531	0.00706	0.08401	0.55	1, 77
	X1 MILEAGE	30209.3797	14536.8493	0.07699					
F34	Y CO	33.8796	16.0016	23.78299	15.3024	0.09801	0.31306	7.82	1, 72
	X1 MILEAGE	21839.2432	10835.4846	0.46219					
F35	Y CO	39.0504	19.6590	38.24267	19.7814	0.00032	0.01791	0.03	1, 78
	X1 MILEAGE	31778.0500	13656.0623	0.02541					
F36	Y CO	66.1990	28.7352	37.84176	25.6869	0.21249	0.46096	18.35	1, 68
	X1 MILEAGE	27610.2429	12896.7315	1.02707					
G51	Y CO	41.0285	19.3887	30.64933	18.9866	0.05418	0.23277	4.12	1, 72
	X1 MILEAGE	31090.6081	13518.8846	0.33394					
G52	Y CO	32.3436	14.2129	36.98881	14.1484	0.02192	-0.14806	1.70	1, 76
	X1 MILEAGE	27735.9231	12564.9746	-0.16748					
G53	Y CO	42.3462	14.8801	34.40429	14.5324	0.05811	0.24106	4.87	1, 79

	X1	MILEAGE	27934.6943	12616.7837	0.28490							
G54	Y	CO	77.7733	37.5933	76.12206	37.8309	0.00031	0.01751	0.02	1,	77	
	X1	MILEAGE	32299.3038	12879.5433	0.05112							
G55	Y	CO	50.7220	20.8328	48.22950	20.9284	0.00390	0.06248	0.30	1,	76	
	X1	MILEAGE	25810.3974	13479.0134	0.09657							
G56	Y	CO	57.6340	27.9506	48.22989	27.8389	0.02348	0.15323	1.91	1,	63	
	X1	MILEAGE	27542.2000	12543.2461	0.34144							
G61	Y	CO	37.7544	12.7899	36.15991	12.8626	0.00227	0.04764	0.17	1,	73	
	X1	MILEAGE	25839.9333	9875.2665	0.06170							
G62	Y	CO	40.4870	11.1375	41.04483	11.2076	0.00053	-0.02303	0.04	1,	76	
	X1	MILEAGE	28046.8077	12900.6722	-0.01989							
G63	Y	CO	42.2801	28.5089	41.85680	26.8764	0.12412	0.35231	9.64	1,	68	
	X1	MILEAGE	29073.1857	14297.9427	0.70248							
G66	Y	CO	53.5030	15.8626	51.50371	15.9281	0.00418	0.06463	0.34	1,	80	
	X1	MILEAGE	24582.3171	12605.9520	0.08193							
G67	Y	CO	54.6472	38.5243	74.24509	36.5703	0.11252	0.33545	8.24	1,	65	
	X1	MILEAGE	30505.1493	12966.6723	0.99642							
G71	Y	CO	71.3244	22.1977	54.92178	21.0035	0.11732	0.34251	9.30	1,	70	
	X1	MILEAGE	34187.4861	15846.8723	0.47978							
G72	Y	CO	54.2148	16.2791	52.38810	16.3567	0.00467	0.06830	0.33	1,	70	
	X1	MILEAGE	29205.3056	17777.8449	0.06295							
G76	Y	CO	37.6073	14.4627	24.11067	11.9589	0.32604	0.57100	33.38	1,	69	
	X1	MILEAGE	27867.9437	17051.6577	0.48431							
V81	Y	CO	29.0540	15.4481	19.79158	14.8619	0.08618	0.29356	7.36	1,	78	
	X1	MILEAGE	26918.6125	13179.6402	0.34409							
V82	Y	CO	22.4694	17.5356	15.48016	17.2454	0.04704	0.21690	3.31	1,	67	
	X1	MILEAGE	27862.4058	15162.2184	0.25089							

DISPLACEMENT CLASSES FOR COMBINED CITIES MASS NOX

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y NOX	4.9641	1.9335	6.82688	1.7211	0.21860	-0.46755	19.86	1, 71
	X1 MILEAGE	25290.6164	12287.0888	-0.07357					
C11	Y NOX	5.5799	1.9035	4.50071	1.8408	0.07771	-0.27876	5.98	1, 71
	X1 MILEAGE	27777.3562	16005.6614	-0.03315					
C12	Y NOX	5.6807	1.9564	6.85882	1.8600	0.10820	-0.32893	8.98	1, 74
	X1 MILEAGE	32635.4342	17826.1644	-0.03618					
C13	Y NOX	6.0642	2.0145	6.18027	2.0276	0.00100	-0.03164	0.07	1, 71
	X1 MILEAGE	34397.7945	18898.6945	-0.00357					
C14	Y NOX	4.4306	2.2265	5.69071	2.1254	0.10162	-0.31878	7.92	1, 70
	X1 MILEAGE	30682.8194	17288.5983	-0.04199					
F31	Y NOX	6.2335	2.2880	6.07948	2.3026	0.00106	0.03257	0.08	1, 72
	X1 MILEAGE	30604.7703	14811.0106	0.00509					
F32	Y NOX	5.0237	2.2945	6.43399	2.1432	0.13856	-0.37224	12.55	1, 78
	X1 MILEAGE	17650.0125	10692.9807	-0.07997					
F33	Y NOX	6.6497	1.7154	7.97111	1.5998	0.14174	-0.37648	12.39	1, 75
	X1 MILEAGE	30094.8961	14708.8634	-0.04391					
F34	Y NOX	5.9353	1.9897	6.59391	1.9770	0.02667	-0.16331	1.92	1, 70
	X1 MILEAGE	22049.7222	10893.6915	-0.02989					
F35	Y NOX	6.0813	2.0334	7.07169	1.9995	0.04582	-0.21406	3.60	1, 75
	X1 MILEAGE	31844.2727	13995.2229	-0.03110					
F36	Y NOX	4.3914	1.4862	6.11579	1.2848	0.26418	-0.51398	22.98	1, 64
	X1 MILEAGE	27618.2424	12233.8748	-0.06244					
G51	Y NOX	4.2236	1.4047	4.95768	1.3780	0.05102	-0.22587	3.82	1, 71
	X1 MILEAGE	31276.4932	13516.8830	-0.02347					
G52	Y NOX	4.4923	1.4887	5.13092	1.4703	0.03742	-0.19343	2.92	1, 75
	X1 MILEAGE	27873.8831	12587.7653	-0.02289					
G53	Y NOX	5.6391	1.4755	6.06791	1.4731	0.01681	-0.12967	1.25	1, 73

5736A

	X1	MILEAGE	28291.5467	12622.5954	-0.01518						
G54	Y	NOX	3.5888	1.8493	4.41549	1.8332	0.03045	-0.17451	2.32	1,	74
	X1	MILEAGE	31678.1447	12367.0940	-0.02618						
G55	Y	NOX	6.1283	1.8550	6.34177	1.8640	0.00373	-0.06105	0.28	1,	74
	X1	MILEAGE	25696.2895	13631.3018	-0.00831						
G56	Y	NOX	3.9822	1.6577	5.26999	1.5609	0.12745	-0.35700	9.06	1,	62
	X1	MILEAGE	27407.4063	12594.8649	-0.04699						
G61	Y	NOX	5.7629	1.5745	6.88364	1.5256	0.07431	-0.27260	5.62	1,	70
	X1	MILEAGE	25873.7222	9909.0177	-0.04332						
G62	Y	NOX	5.5945	1.5551	6.81943	1.4605	0.12984	-0.36033	10.89	1,	73
	X1	MILEAGE	27864.5600	12747.0354	-0.04396						
G63	Y	NOX	5.2312	1.8429	6.45199	1.7559	0.10549	-0.32479	7.90	1,	67
	X1	MILEAGE	29238.1304	14335.4465	-0.04179						
G66	Y	NOX	4.2935	1.2111	4.84876	1.1837	0.05696	-0.23867	4.71	1,	78
	X1	MILEAGE	24380.1250	12691.9598	-0.02278						
G67	Y	NOX	4.9758	1.9496	7.12329	1.7323	0.22266	-0.47187	18.33	1,	64
	X1	MILEAGE	30901.1212	13065.9930	-0.07041						
G71	Y	NOX	4.4254	1.5521	5.85308	1.4123	0.18409	-0.42906	15.34	1,	68
	X1	MILEAGE	34354.5571	16025.1371	-0.04156						
G72	Y	NOX	5.5355	1.6904	5.39810	1.7010	0.00239	0.04887	0.16	1,	67
	X1	MILEAGE	29435.4638	17699.5172	0.00467						
G76	Y	NOX	6.2342	1.7571	7.02548	1.7013	0.07592	-0.27553	5.67	1,	69
	X1	MILEAGE	27867.9437	17051.6577	-0.02819						
V81	Y	NOX	2.7751	0.8509	3.60767	0.7556	0.22221	-0.47139	20.86	1,	73
	X1	MILEAGE	27519.0000	13257.7876	-0.03026						
V82	Y	NOX	3.0791	1.5717	3.99906	1.4993	0.10378	-0.32215	7.53	1,	65
	X1	MILEAGE	27948.7015	15381.7289	-0.03292						

DISPLACEMENT CLASSES FOR COMBINED CITIES PASS NOXC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
A01	Y	NOXC	4.8585	1.7979	6.30939	1.6655	0.15372	-0.39208	12.90	1, 71
	X1	MILEAGE	25290.6164	12287.0888	-0.05797					
C11	Y	NOXC	5.4112	1.7909	6.10339	1.7582	0.04959	-0.22269	3.70	1, 71
	X1	MILEAGE	27777.3562	16005.6614	-0.02492					
C12	Y	NOXC	5.5666	1.8538	6.46667	1.7995	0.07034	-0.26521	5.60	1, 74
	X1	MILEAGE	32635.4342	17826.1644	-0.02758					
C13	Y	NOXC	5.8631	1.7565	5.58111	1.7619	0.00778	0.08822	0.56	1, 71
	X1	MILEAGE	34397.7945	18898.6945	0.00820					
C14	Y	NOXC	4.3849	2.1638	5.30780	2.1153	0.05776	-0.24034	4.29	1, 70
	X1	MILEAGE	30682.8194	17288.5983	-0.03008					
F31	Y	NOXC	6.1596	2.3191	5.82339	2.3294	0.00492	0.07016	0.36	1, 72
	X1	MILEAGE	30604.7703	14811.0106	0.01099					
F32	Y	NOXC	4.8145	2.1276	5.91889	2.0326	0.09889	-0.31446	8.56	1, 78
	X1	MILEAGE	17650.0125	10692.9807	-0.06297					
F33	Y	NOXC	6.5755	1.6439	7.51257	1.5893	0.07762	-0.27861	6.31	1, 75
	X1	MILEAGE	30094.8961	14708.3634	-0.03114					
F34	Y	NOXC	5.7854	1.9022	6.11772	1.9086	0.00745	-0.08631	0.53	1, 70
	X1	MILEAGE	22049.7222	10893.6915	-0.01507					
F35	Y	NOXC	5.8926	1.7543	6.62777	1.7357	0.03392	-0.18418	2.63	1, 75
	X1	MILEAGE	31844.2727	13995.2229	-0.02309					
F36	Y	NOXC	4.3383	1.3992	5.80071	1.2500	0.21420	-0.46281	17.45	1, 64
	X1	MILEAGE	27618.2424	12233.8748	-0.05293					
G51	Y	NOXC	4.1186	1.4687	4.46309	1.4714	0.01027	-0.10134	0.74	1, 71
	X1	MILEAGE	31276.4932	13516.8830	-0.01101					
G52	Y	NOXC	4.3896	1.4005	4.95083	1.3865	0.03275	-0.18097	2.54	1, 75
	X1	MILEAGE	27873.8831	12587.7653	-0.02019					
G53	Y	NOXC	5.4817	1.4000	5.57178	1.4090	0.00082	-0.02870	0.06	1, 73

561A

	X1	MILEAGE	28291.3467	12622.5954	-0.00318						
G54	Y	NOXC	3.4261	1.5894	3.97529	1.5855	0.01820	-0.13490	1.37	1,	74
	X1	MILEAGE	31678.1447	12367.0940	-0.01734						
G55	Y	NOXC	6.0376	1.8625	5.97908	1.8748	0.00028	0.01667	0.02	1,	74
	X1	MILEAGE	25696.2895	13631.3018	0.00228						
G56	Y	NOXC	3.9405	1.6424	4.97150	1.5852	0.08322	-0.28848	5.63	1,	62
	X1	MILEAGE	27407.4063	12594.8649	-0.03762						
G61	Y	NOXC	5.5879	1.5652	6.44356	1.5414	0.04383	-0.20736	3.21	1,	70
	X1	MILEAGE	25873.7222	9909.0177	-0.03307						
G62	Y	NOXC	5.3944	1.4521	6.34425	1.3950	0.08954	-0.29922	7.18	1,	73
	X1	MILEAGE	27864.5600	12747.0354	-0.03409						
G63	Y	NOXC	5.1672	1.8929	5.96091	1.8663	0.04226	-0.20557	2.96	1,	67
	X1	MILEAGE	29238.1304	14335.4465	-0.02719						
G66	Y	NOXC	4.1776	1.0353	4.39457	1.0357	0.01190	-0.10909	0.94	1,	78
	X1	MILEAGE	24380.1250	12691.9598	-0.00890						
G67	Y	NOXC	4.8976	1.8201	6.58277	1.6839	0.15731	-0.39662	11.95	1,	64
	X1	MILEAGE	30501.1212	13065.9930	-0.05529						
G71	Y	NOXC	4.3706	1.4268	5.46529	1.3421	0.12807	-0.35787	9.99	1,	68
	X1	MILEAGE	34354.5571	16025.1371	-0.03196						
G72	Y	NOXC	5.3152	1.4141	5.35336	1.4244	0.00026	-0.01622	0.02	1,	67
	X1	MILEAGE	29435.4638	17699.5172	-0.00130						
G76	Y	NOXC	6.1572	1.5539	6.93181	1.4905	0.09304	-0.30503	7.08	1,	69
	X1	MILEAGE	27867.9437	17051.6577	-0.02780						
V81	Y	NOXC	2.7040	0.7694	3.31676	0.7154	0.14720	-0.38366	12.60	1,	73
	X1	MILEAGE	27519.0000	13257.7876	-0.02227						
V82	Y	NOXC	2.9290	1.4704	3.81501	1.3978	0.10999	-0.33165	8.03	1,	65
	X1	MILEAGE	27948.7015	15381.7289	-0.03170						

TABLE G-10

Combined Classes

Kansas City

Mass

HC

CO

NO_x

NO_xC

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY MASS HC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y HC	3.6908	2.1170	3.22677	2.1037	0.01349	0.11616	14.13	1,1033
	X1 MILEAGE	26181.2783	13858.6342	0.01774					

56:1 A

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY MASS CO

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	CO	43.5982	25.1518	36.93383	24.9152	0.01967	0.14026	20.73	1,1033
	X1	MILEAGE	26181.2783	13058.6342	0.25455					

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY MASS NOX

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	NOX	5.5231	1.9750	6.02817	1.9578	0.01833	-0.13539	19.27	1,1032
	X1	MILEAGE	26161.4342	13850.6211	-0.01931					

COMBINED DISPLACEMENT CLASSES FOR KANSAS CITY MASS NOXC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y NOXC	5.0272	1.8116	5.34197	1.8048	0.00846	-0.09196	8.80	1,1032
	X1 MILEAGE	26161.4342	13850.6211	-0.01209					

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TABLE G-11

Combined Classes

Houston

Mass

HC

CO

NO_x

NO_xC

COMBINED DISPLACEMENT CLASSES FOR HOUSTON MASS HC

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y HC	4.0305	3.0276	2.89657	2.9782	0.03332	0.18254	34.09	1, 989
	X1 MILEAGE	30554.9939	14892.1158	0.03711					

COMBINED DISPLACEMENT CLASSES FOR HOUSTON MASS CO

CLASS	VARIABLE	MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y CO	47.2580	27.5179	34.79456	26.8518	0.04878	0.22087	50.88	1, 992
	X1 MILEAGE	30549.3139	14897.8173	0.40798					

COMBINED DISPLACEMENT CLASSES FOR HOUSTON MASS NOX

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	NOX	4.6034	1.9697	5.49174	1.9233	0.04762	-0.21822	46.60	1, 932
	X1	MILEAGE	30867.7580	14943.8918	-0.02876					

COMBINED DISPLACEMENT CLASSES FOR HOUSTON MASS NOXC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	NOXC	4.8964	2.0502	5.74408	2.0098	0.04007	-0.20017	38.90	1, 932
	X1	MILEAGE	30867.7580	14943.8918	-0.02746					

TABLE G-12

Combined Classes and Cities

HC

CO

NO_x

NO_xC

COMBINED DISPLACEMENT CLASSES AND CITIES MASS HC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	HC	3.8569	2.6074	3.03454	2.5736	0.02621	0.16188	54.47	1,2024
	X1	MILEAGE	28320.6426	14535.3323	0.02904					

COMBINED DISPLACEMENT CLASSES AND CITIES MASS CO

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	CF
	Y	CO	45.3911	26.3945	35.57501	29.9154	0.03645	0.19091	76.67	1.2027
	X1	MILEAGE	28321.1636	14538.5536	0.34669					

555A

COMBINED DISPLACEMENT CLASSES AND CITIES MASS NOX

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	NOX	5.0866	2.0248	5.899[illegible]7	1.9820	0.04237	-0.20585	87.00	1.1966
	X1	MILEAGE	28395.0249	14567.0843	-0.02861					

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COMBINED DISPLACEMENT CLASSES AND CITIES PASS NOXC

CLASS	VARIABLE		MEAN	STAN DEV	COEFF	STD ERR	R**2	R	F	DF
	Y	NOXC	4.9651	1.9291	5.53707	1.9072	0.02313	-0.15210	46.56	1,1966
	X1	MILEAGE	28395.0249	14567.8843	-0.02014					

5577

G-1.2 Data Plots for Selected Vehicle Classes.

In cases where different mileage effects were obtained for a vehicle class in Kansas City and Houston, emission results for individual cars were plotted against mileage and analyzed to determine whether the contradiction was caused by outlying data points or other factors. The plots are based on HC, CO, and uncorrected NO_x concentration data from Table 1 of Appendix B. Mileages are from Table 1 of Appendix A.

G-1.2.1 Data Plots - Class C11

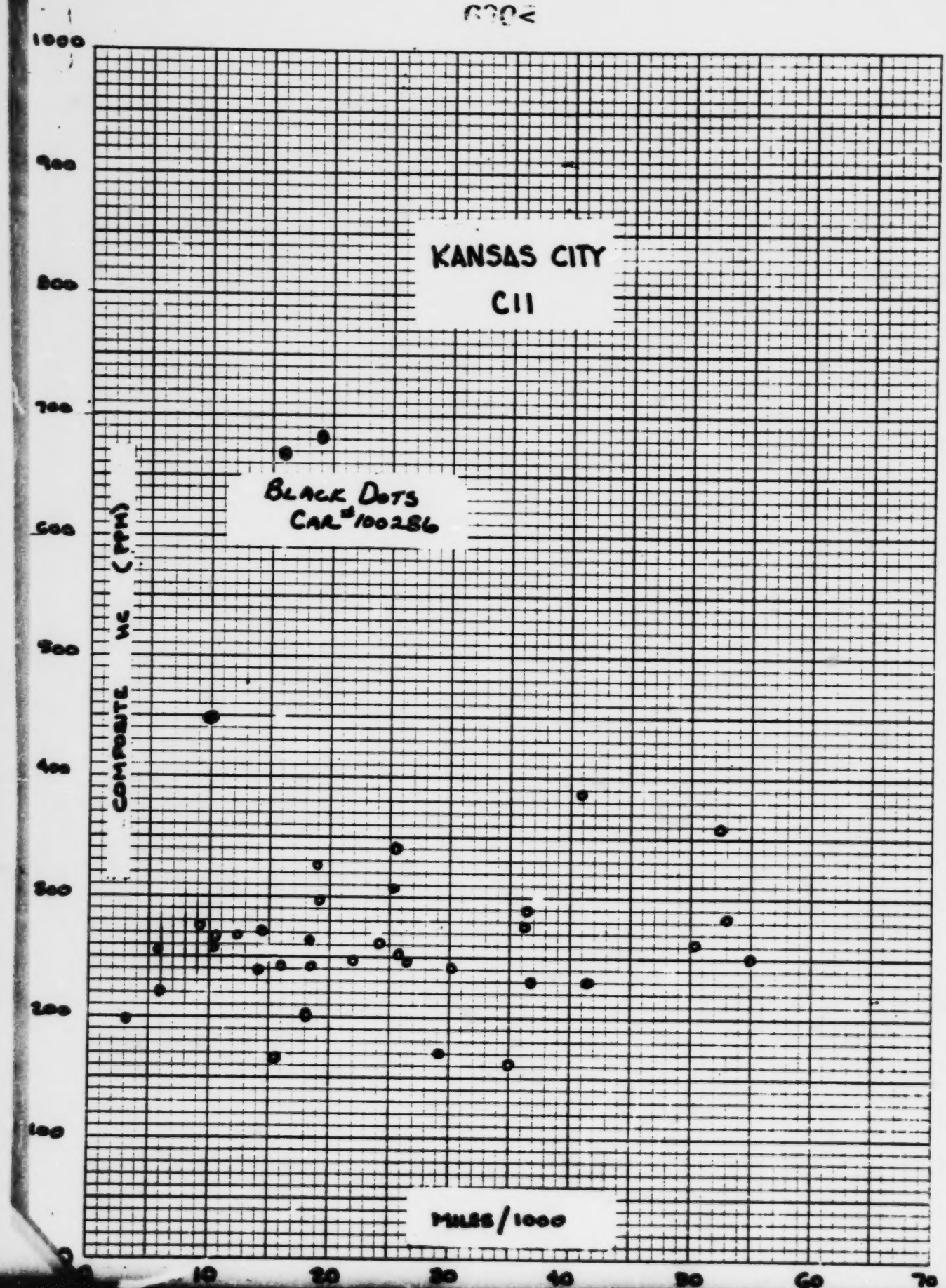
Summary

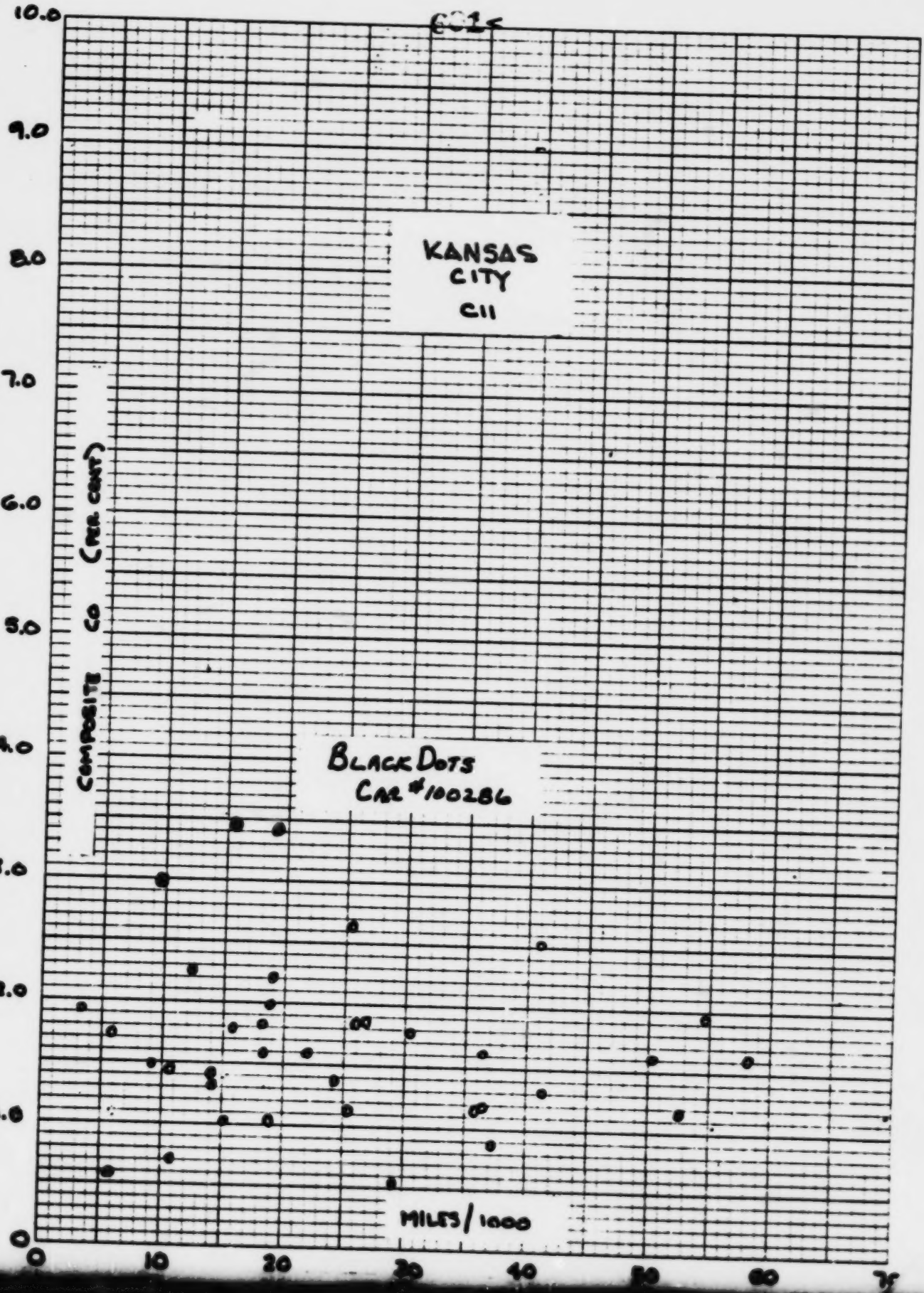
There is a strong trend with mileage for the Houston data for HC, CO and NO_x but not for Kansas City. The mileage effect for Houston is related to data from a single car (200215). Deletion of this car from the data set removes the mileage trend, an example of biasing by single cars.

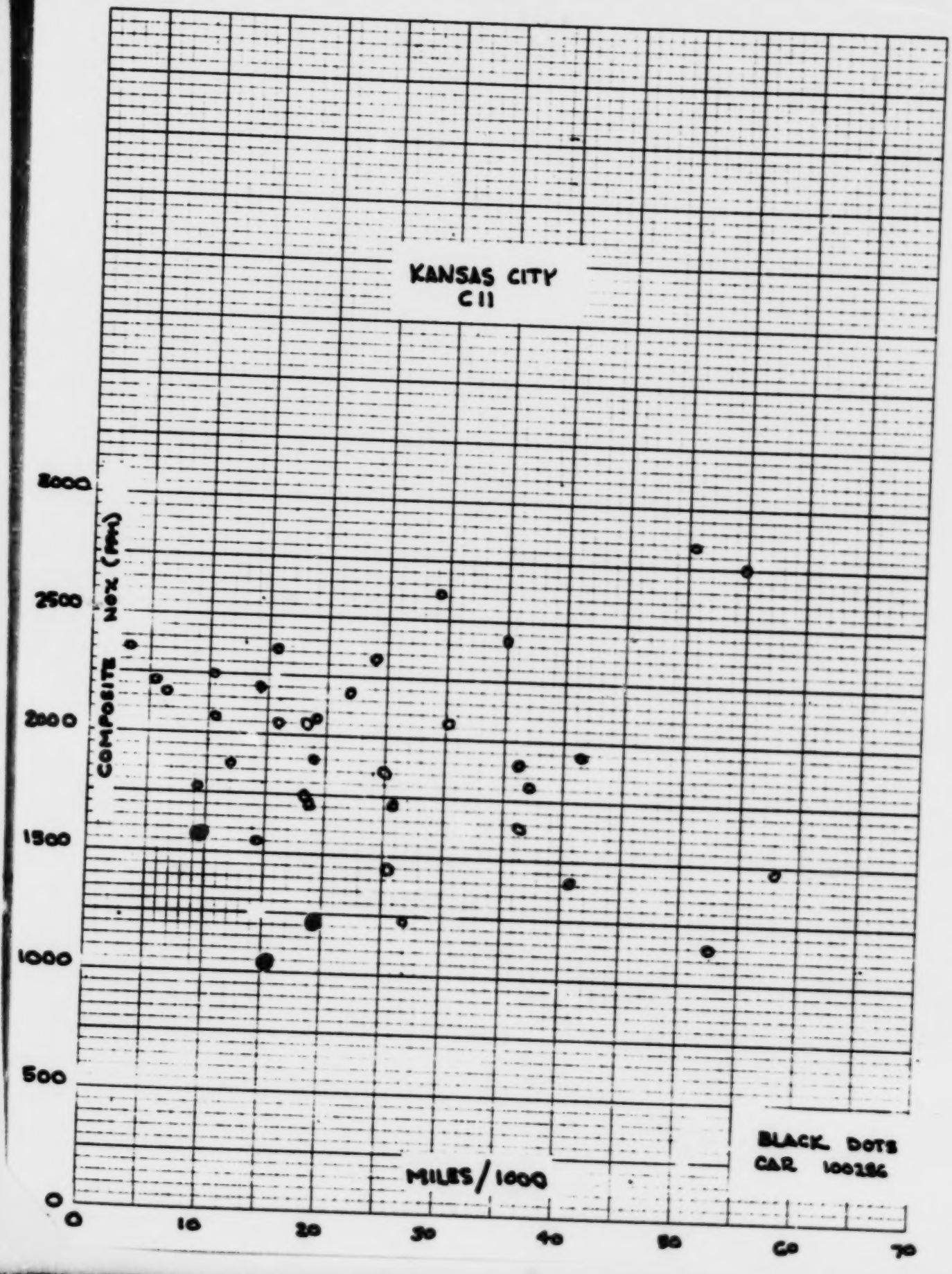
Discussion

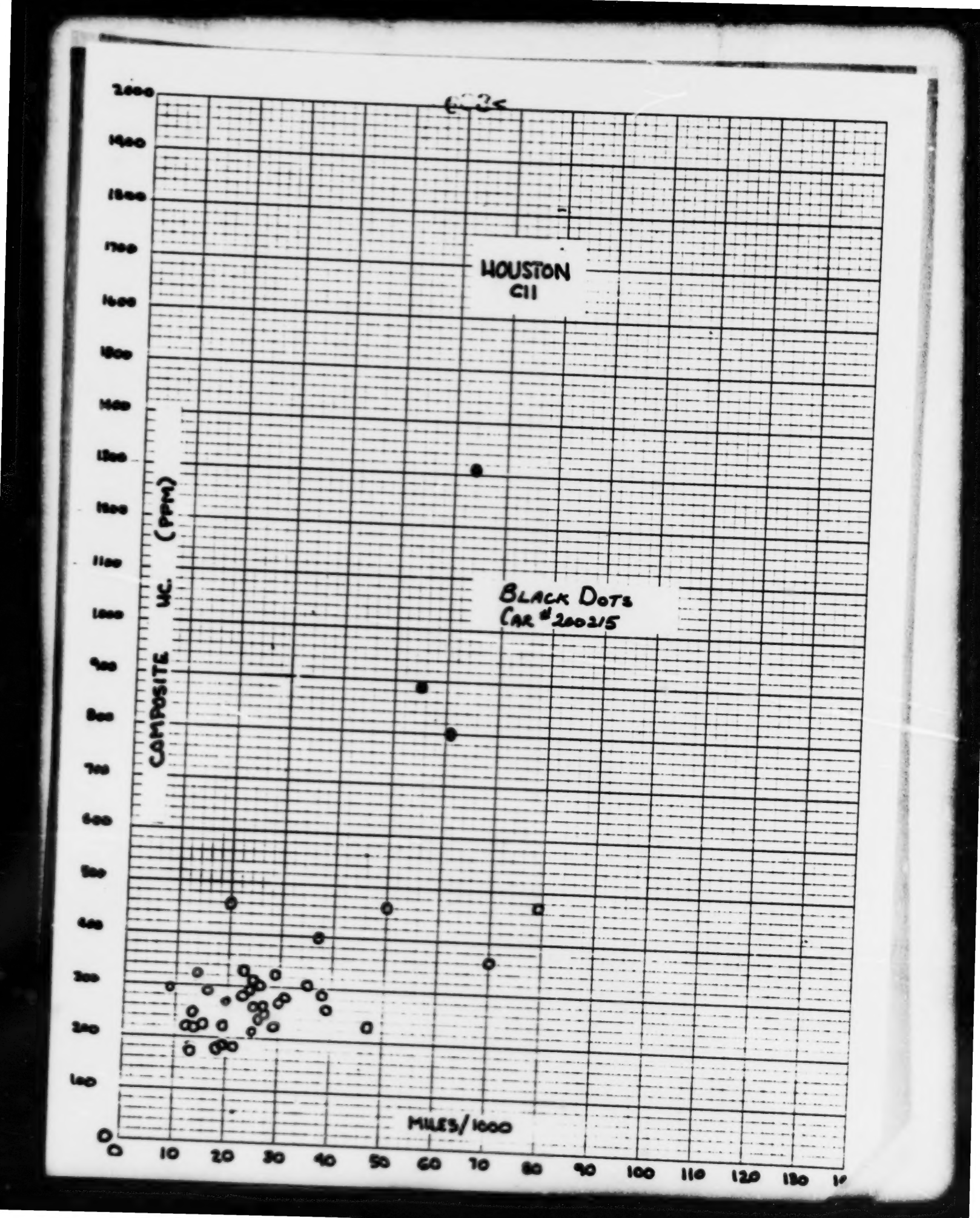
This class provides an example of data biasing by single cars. Kansas City data show no mileage effects with very small F-values. A single car, 100286, has

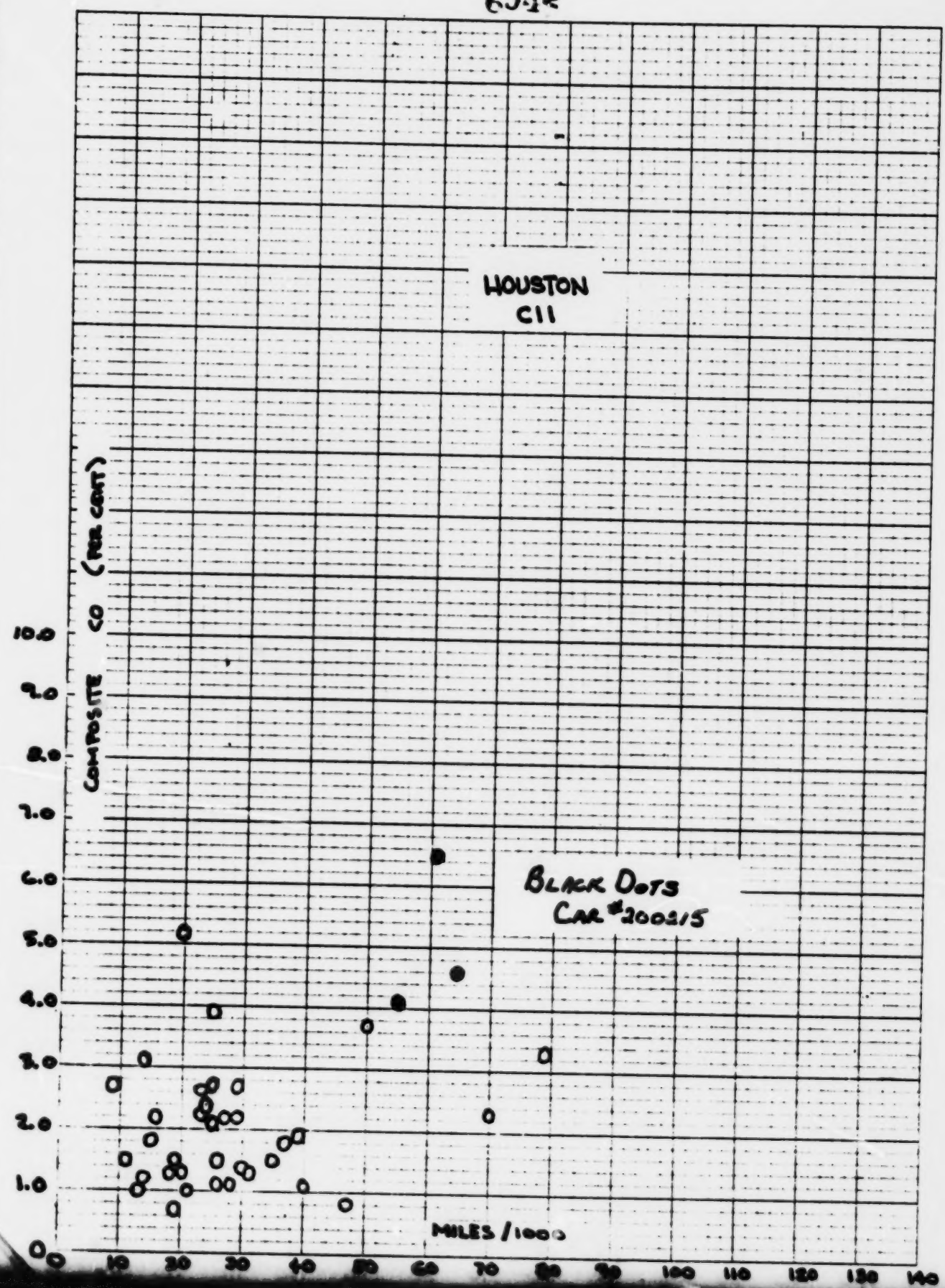
high HC, moderately high CO and NO_x, but has little effect on the conclusions. The F-values from the Houston data indicate a significant mileage effect for all three pollutants, 25.90 for HC, 9.45 for CO, and -6.27 for NO_xC. Plots of the Houston data show that most of these "mileage effects" are related to data from car 200215 with high HC (889, 799 and 1314 PPM at high mileages), high CO and very low NO_x. The data are highly variable, but it is evident that exclusion of the car 200215 data will remove or greatly reduce the supposed effect of mileage.

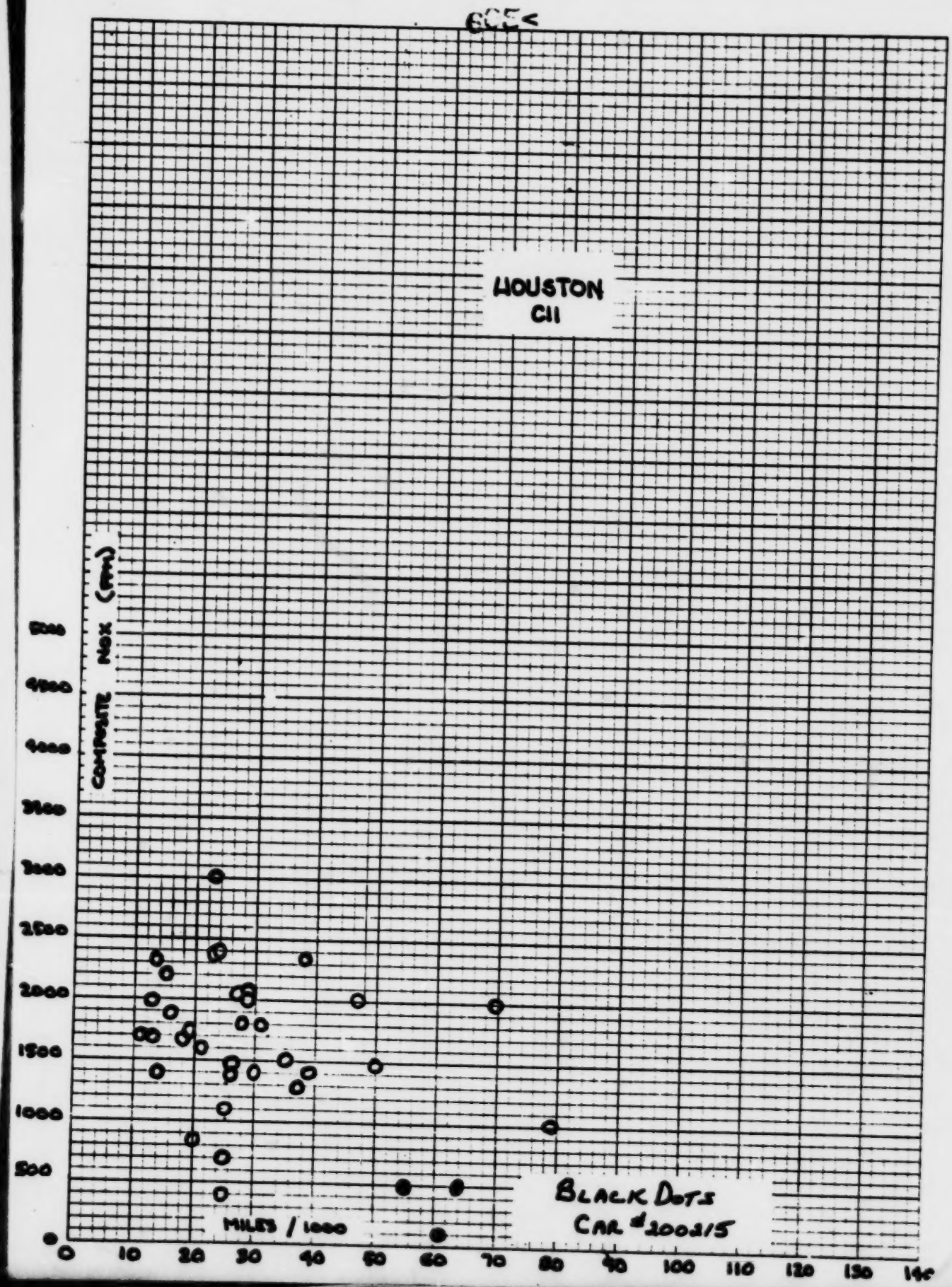

KANSAS CITY
C11
BLACK DOTS
CAR# 100286
COMPOSITE HC (PPM)
MILES/1000
1000
900
800
700
600
500
400
300
200
100
0
10
20
30
40
50
60
70


CO2
KANSAS CITY C11
BLACK DOTS CAR #100286
COMPOSITE CO (PER CENT)
MILES/1000
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
0
10
20
30
40
50
60


KANSAS CITY
C11
COMPOSITE NOX (PPM)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
MILES/1000
BLACK DOTS
CAR 100286


HOUSTON
C11
BLACK DOTS
CAR # 20215
COMPOSITE HC. (PPM)
MILES/1000
0
10
20
30
40
50
60
70
80
90
100
110
120
130


HOUSTON
C11
BLACK DOTS
CAR #20015
COMPOSITE CO (PER CENT)
MILES / 1000
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
10
20
30
40
50
60
70
80
90
100
110
120
130
140


HOUSTON
C11
COMPOSITE NOx (gm/mi)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
MILES / 1000
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
BLACK DOTS
CAR #20015

G-1.2.2 Data Plots - Class G53

Summary

Only the HC data for Houston showed a large mileage effect. It is possible that this single result is caused by the high variability of the data.

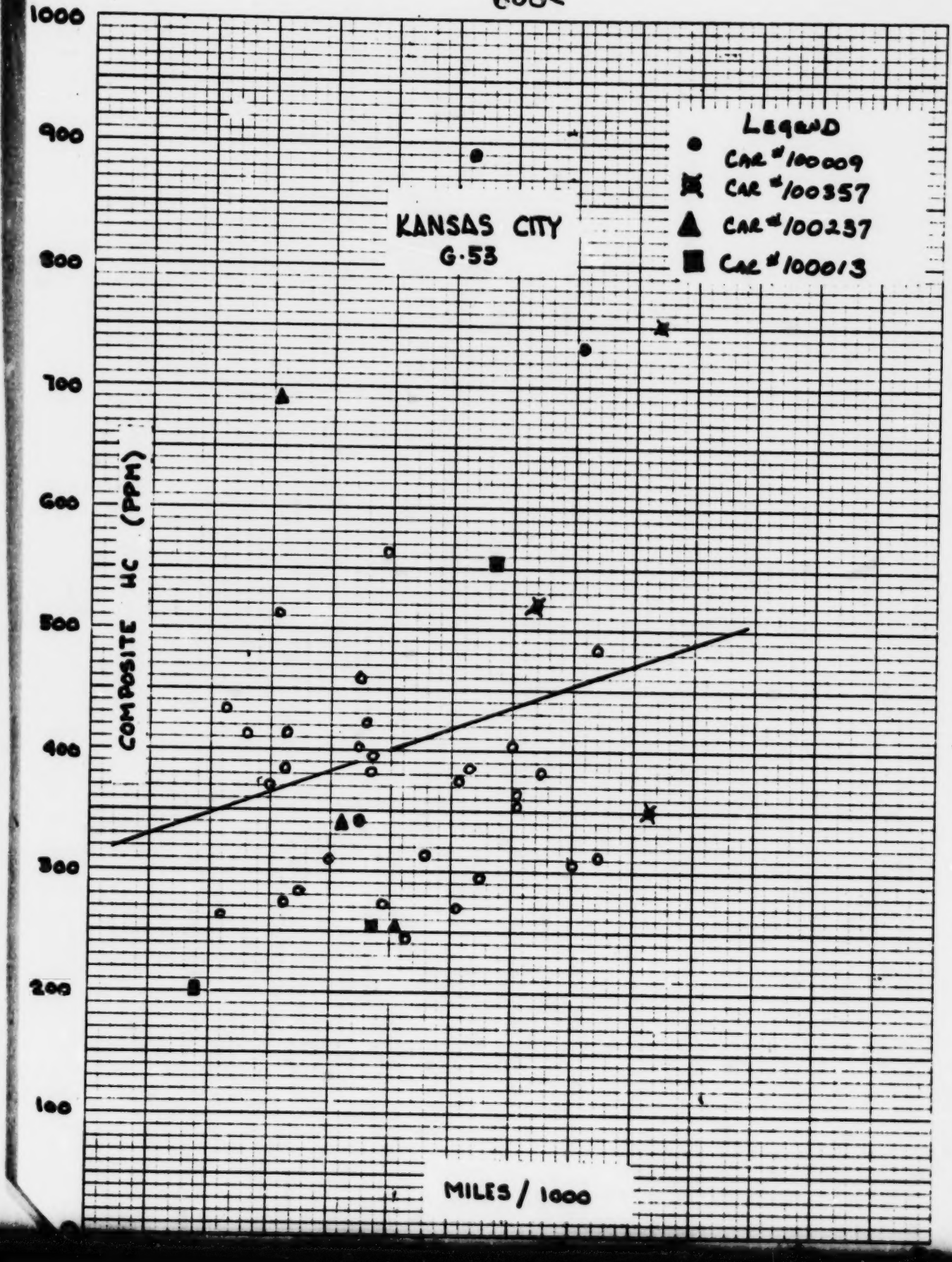
	Trend	Both Cities		
		F	SD	SE fit
HC	strong	41.60**	175	143
CO	none	2.93	0.68	0.67
NO_x	none	3.17	361	356

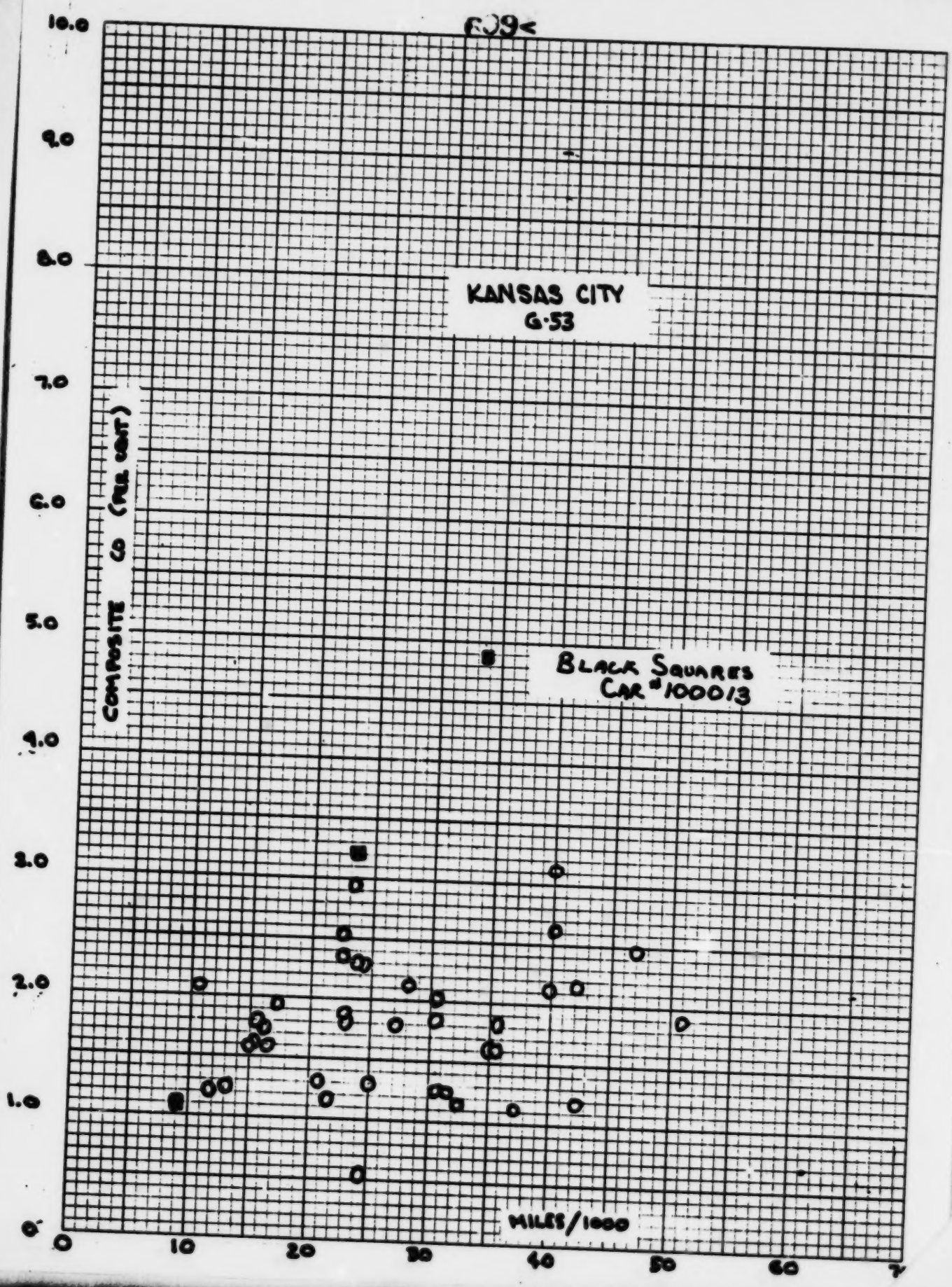
Discussion

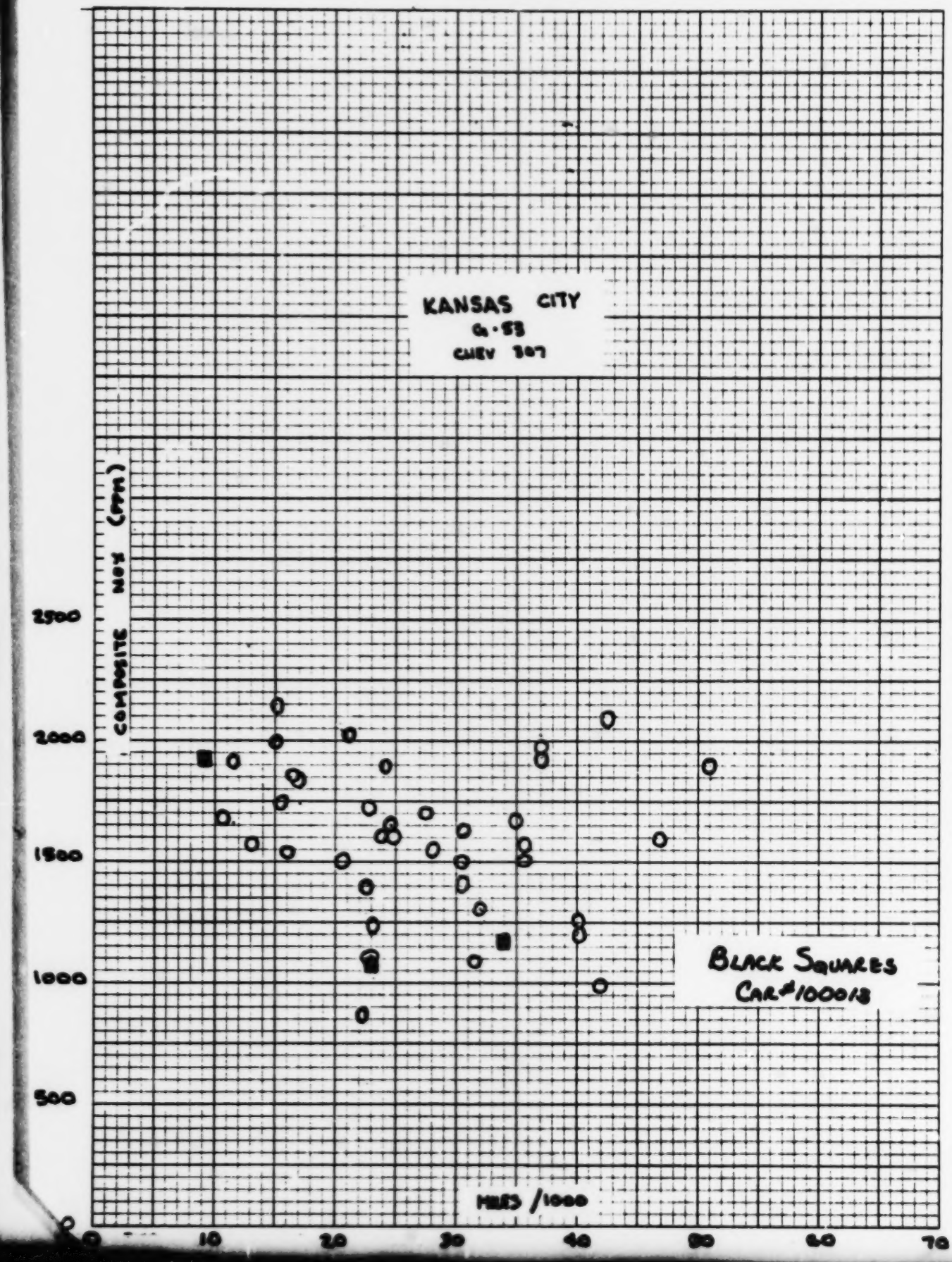
Only the HC data for Houston give a large F-value (54.83, the largest found in this study) - the other sets for Houston and Kansas City give insignificant F-values. A plot of the Houston HC data against mileage confirmed the strong upward thrust of the data which extended from 175 to over 1100 ppm. The eight highest points were from three high mileage cars (200010, 200030, and 200079) with the highest HC value attributed to misfiring. The Kansas City data are also highly variable (200 to 890 ppm) but have a non-significant ill-defined upward trend (F=2.50). When the data for both cities are plotted together they complement each other and a now well-defined increase with

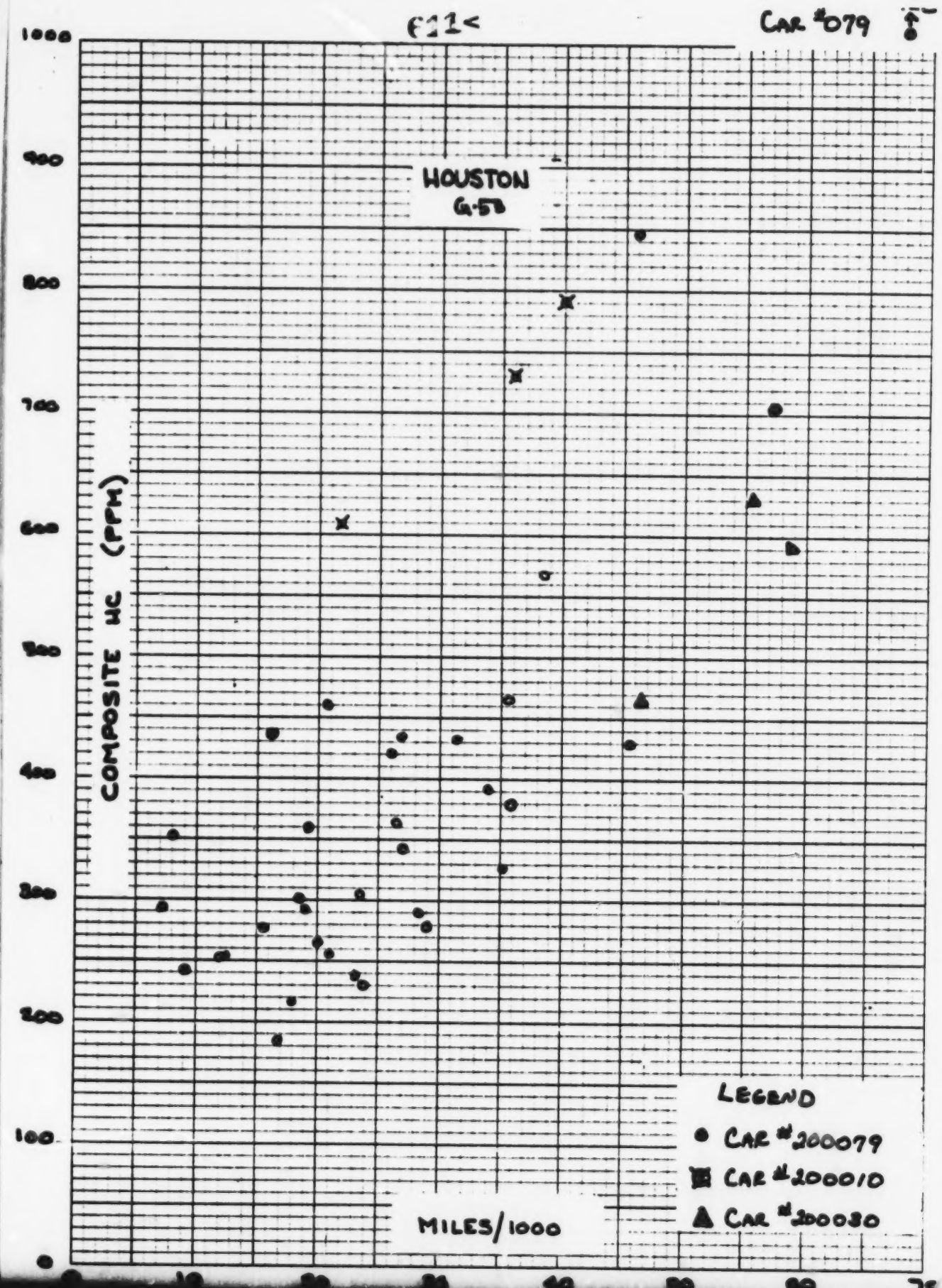
mileage is evident. This is confirmed by the significant F-value (41.60). Omission of the extreme point (1128 ppm, car 200079, Phase 3, 67879 miles, probably misfiring) has virtually no effect.

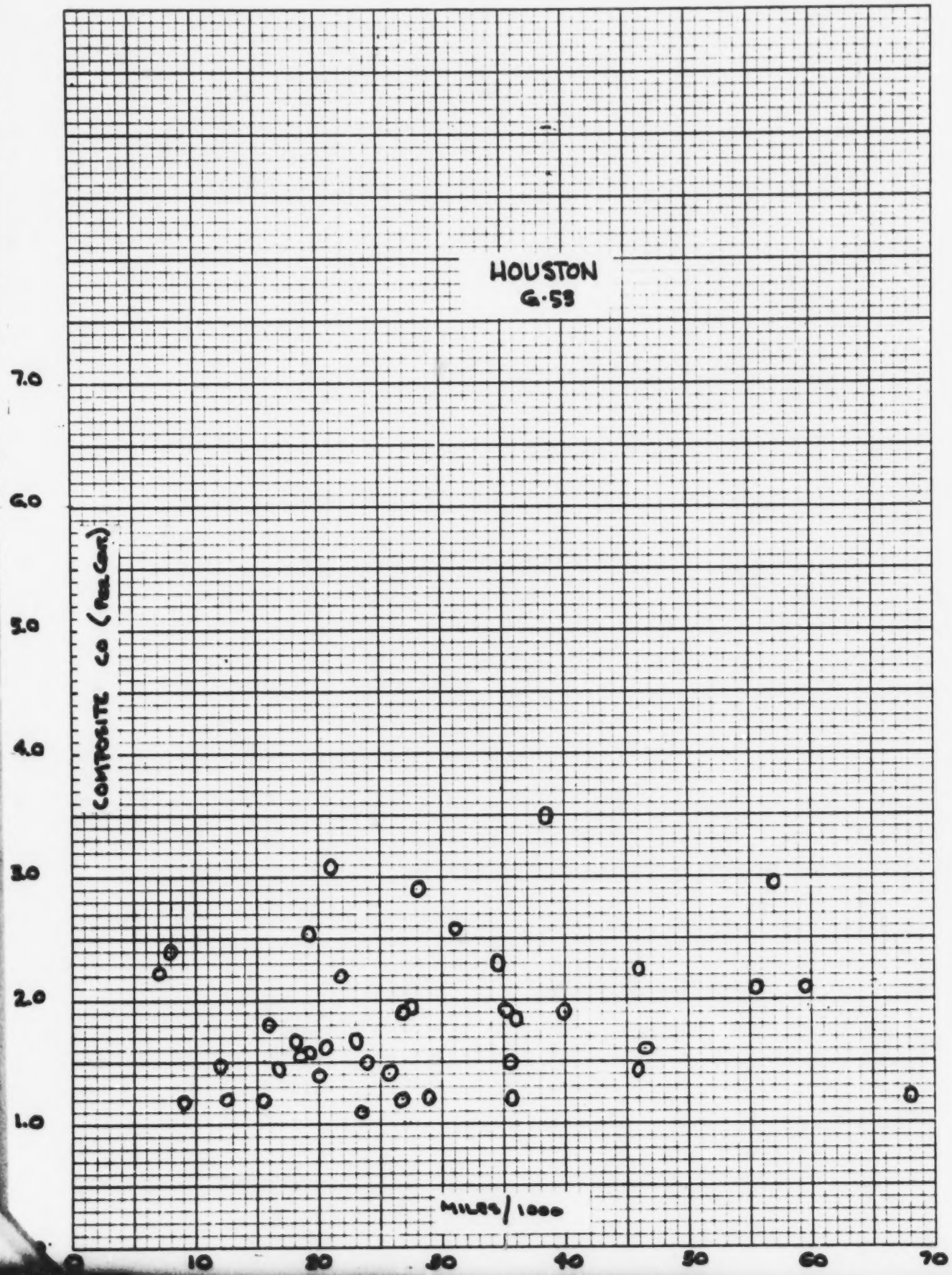
The HC data for this class are highly variable (standard deviation 175 ppm) but do show a definite increase with mileage although the standard error of fit is quite large, 143 ppm. There is no evidence that the CO or NO_x are affected by mileage, either from the F-values or from visual examination of the plots. In this instance the increase in HC with mileage, although statistically significant, may be related to the very wide spread of the data. That is, the same inherent engine conditions may be responsible for the wide spread and the apparent increase with mileage.

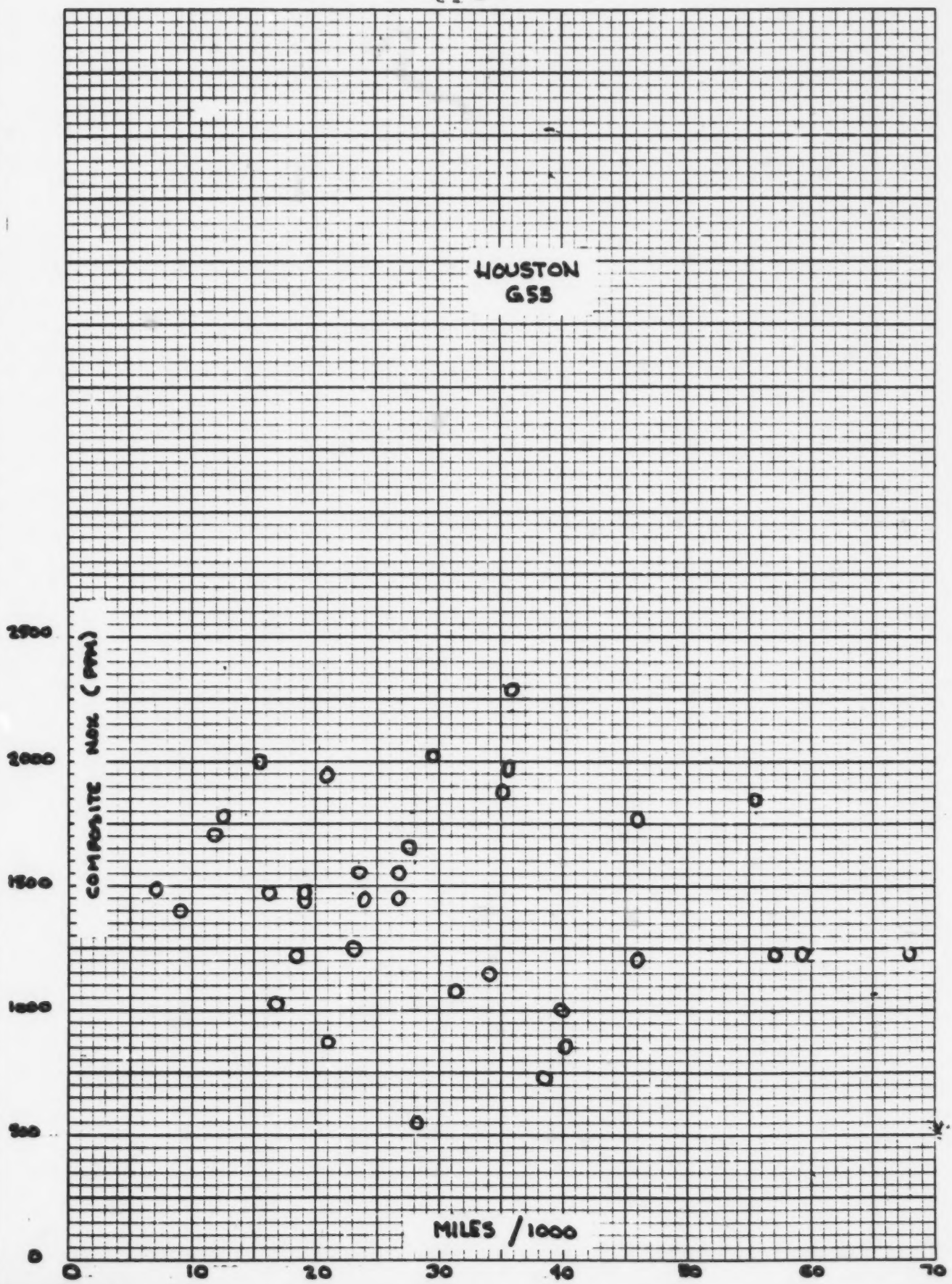

KANSAS CITY
G-53
LEGEND
CAR # 100009
CAR # 100357
CAR # 100237
CAR # 100013
COMPOSITE HC (PPM)
MILES / 1000
1000
900
800
700
600
500
400
300
200
100
0


KANSAS CITY
G-53
BLACK SQUARES
CAR #100013
COMPOSITE CO (PER CENT)
MILES/1000
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
0
10
20
30
40
50
60


KANSAS CITY
CH-53
CHEV 307
COMPOSITE NOx (PPM)
2500
2000
1500
1000
500
0
MILES /1000
10
20
30
40
50
60
70
BLACK SQUARES
CAR #100018


F11<
CAR #079
HOUSTON
G-5B
COMPOSITE HC (PPM)
1000
900
800
700
600
500
400
300
200
100
0
MILES/1000
LEGEND
CAR #200079
CAR #200010
CAR #200030


HOUSTON
G-53
COMPOSITE CO (PERCENT)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
10
20
30
40
50
60
70
MILES/1000


HOUSTON
G53
COMPOSITE NOX (PPM)
2500
2000
1500
1000
500
0
MILES / 1000
0
10
20
30
40
50
60
70

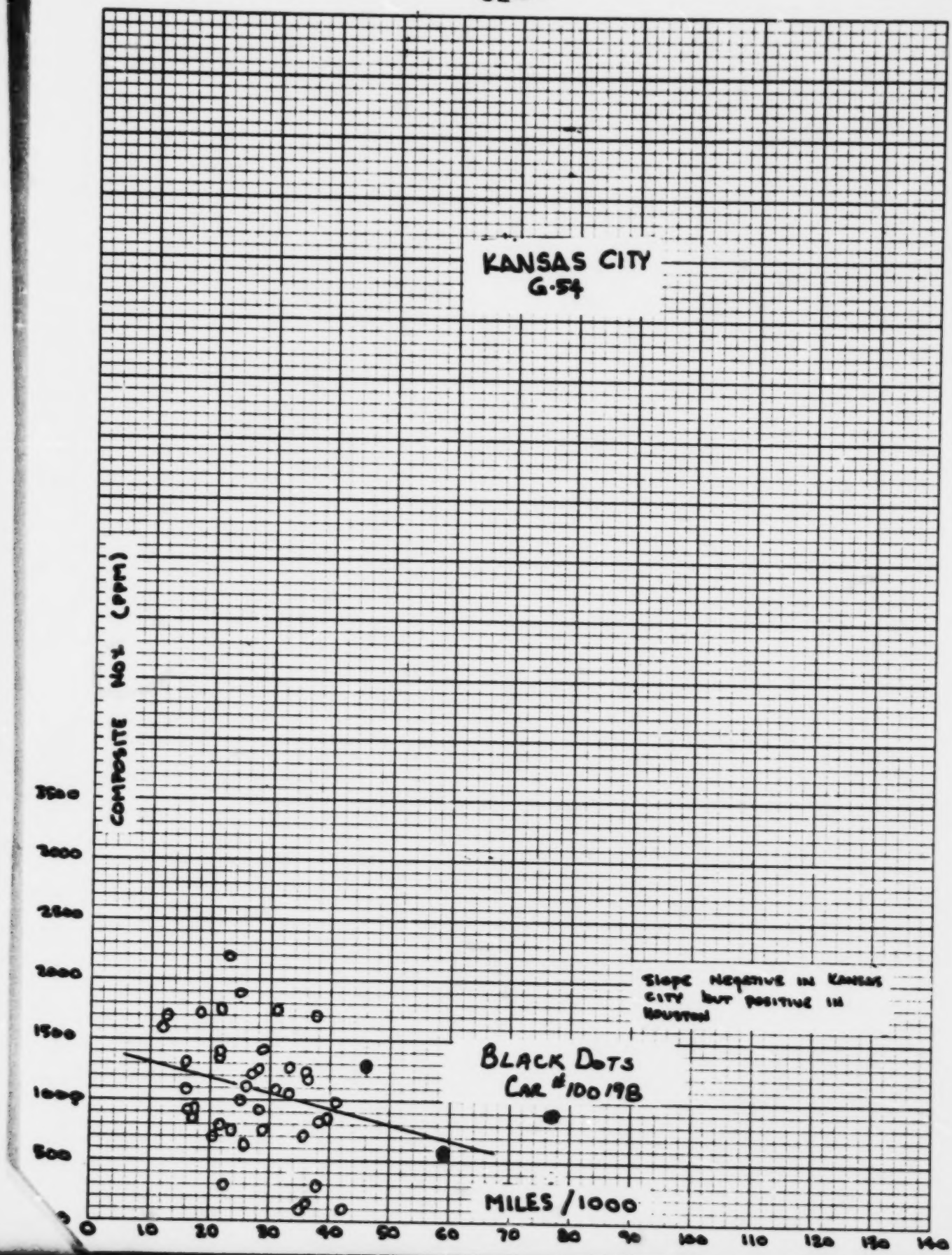
G-1.2.3 Data Plots - Class G54

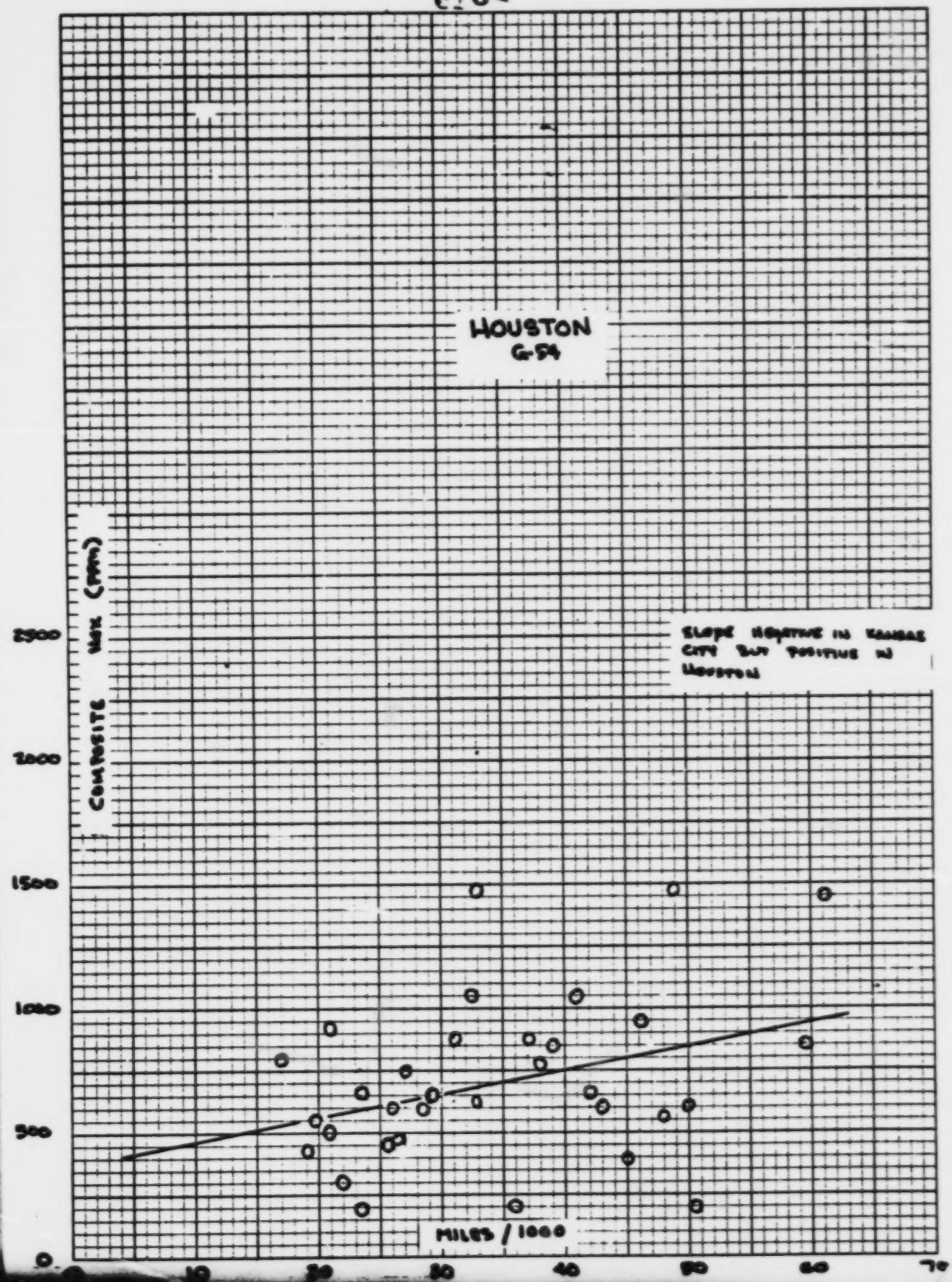
Discussion

There are no significant mileage trends for HC and CO - the plots were not made.

No reason was found for the statistically significant mileage effects for NOx - a decrease in Kansas City but an increase in Houston.

	Kansas City			Houston		
	F	SD	SE fit	F	SD	SE fit
HC	-0.01	143	145	+0.12	265	268
CO	+1.54	1.57	1.56	-2.09	1.57	1.54
NO_x	-4.84	492	471	+4.02	335	320


KANSAS CITY
G-54
COMPOSITE NO₂ (PPM)
2500
2000
1500
1000
500
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
MILES / 1000
Slope negative in Kansas City but positive in Houston
BLACK DOTS
CAR #10019B


HOUSTON
G-54
COMPOSITE INX (MM)
2500
2000
1500
1000
500
0
SLOPE NEGATIVE IN KANSAS CITY BUT POSITIVE IN HOUSTON
MILES / 1000
0
10
20
30
40
50
60
70

G-1.2.4 Data Plots - Class G61

Summary

The mileage effects are not considered to be real. Note that effects for HC, CO, NO_x do not agree

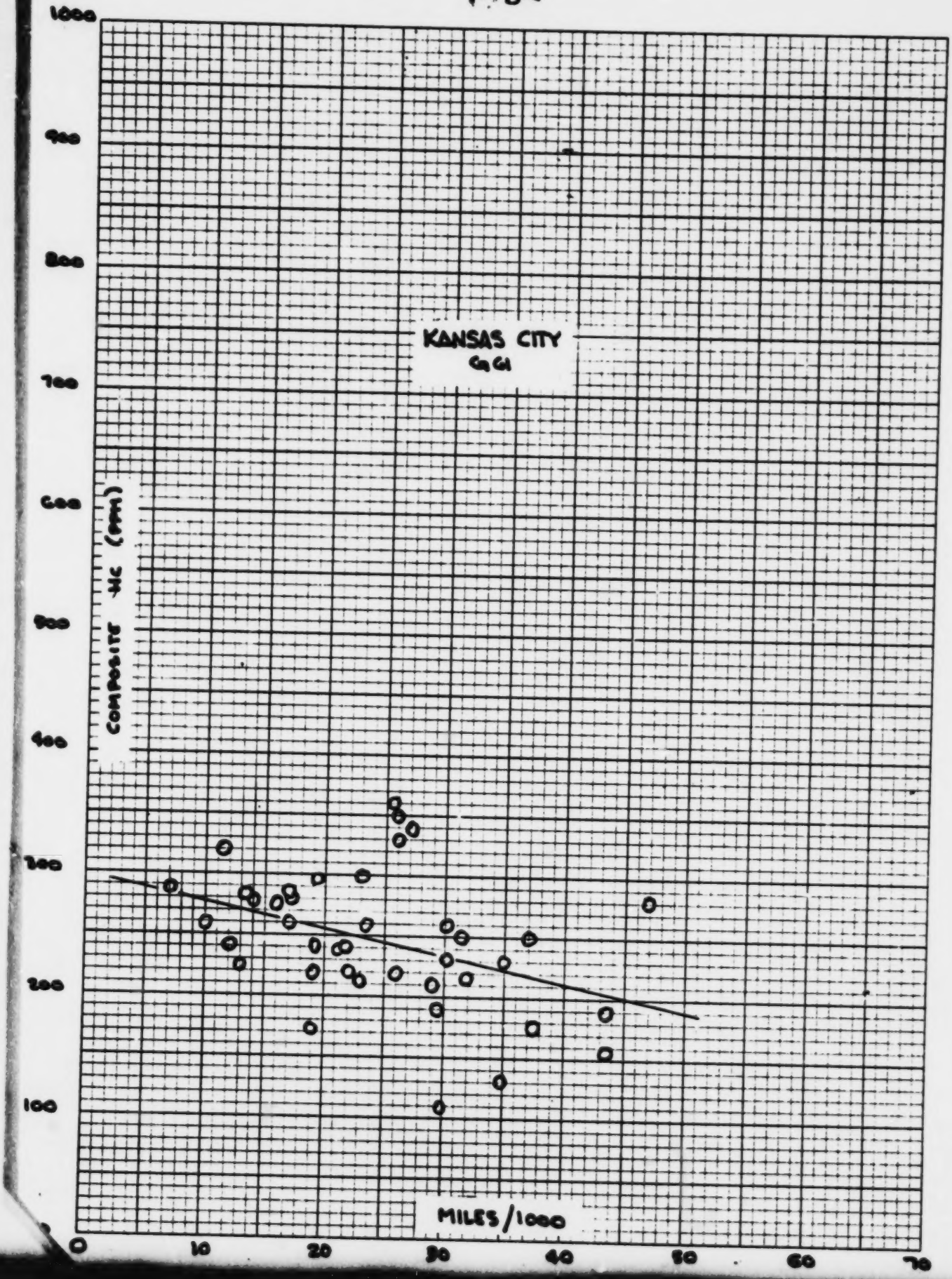
	Trend	Both Cities F	SD	SE fit
HC	moderate	-7.36	51	49
CO	none	0.37	0.54	0.54
NO_x	moderate	-4.86	405	395

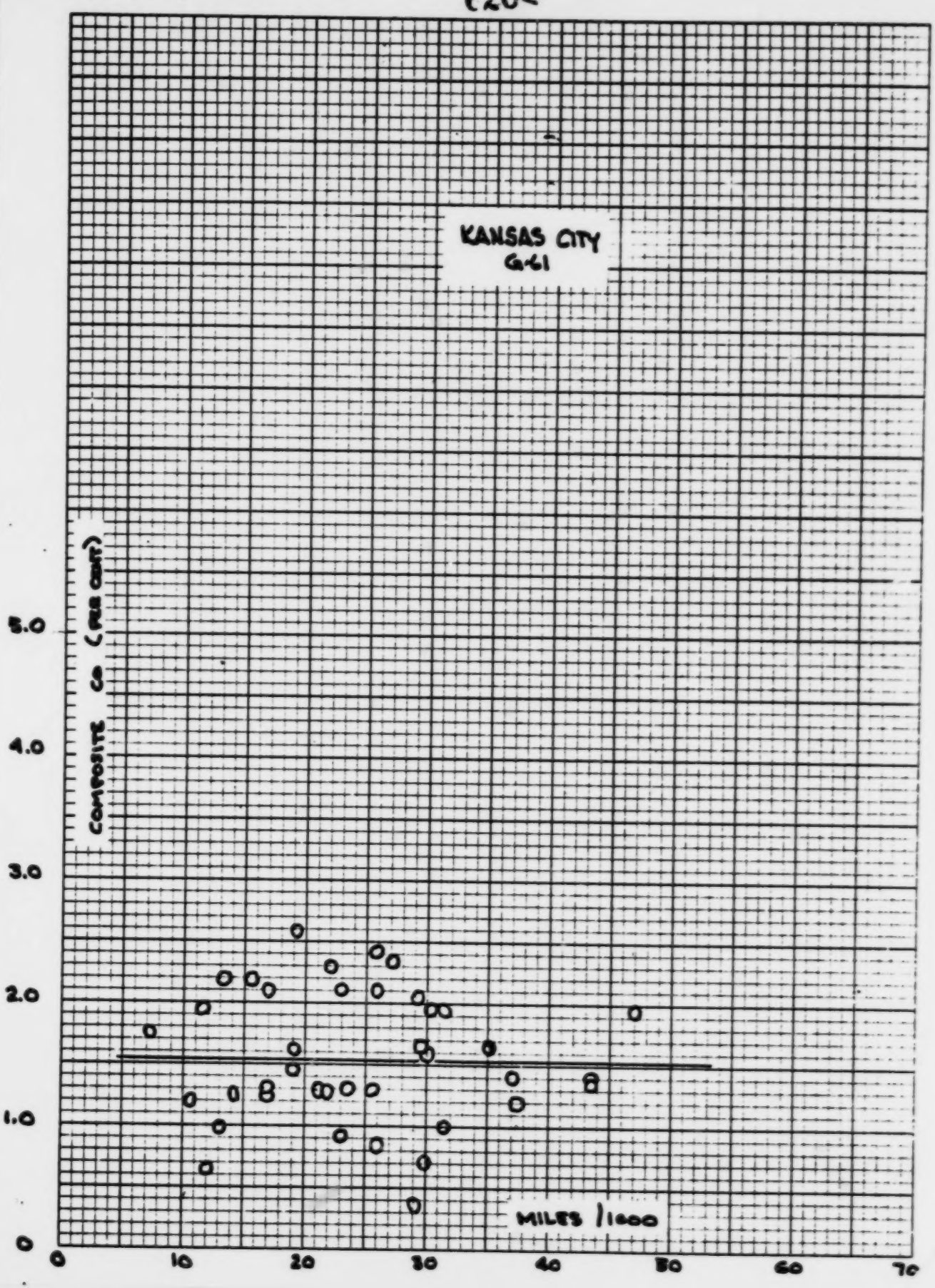
Discussion

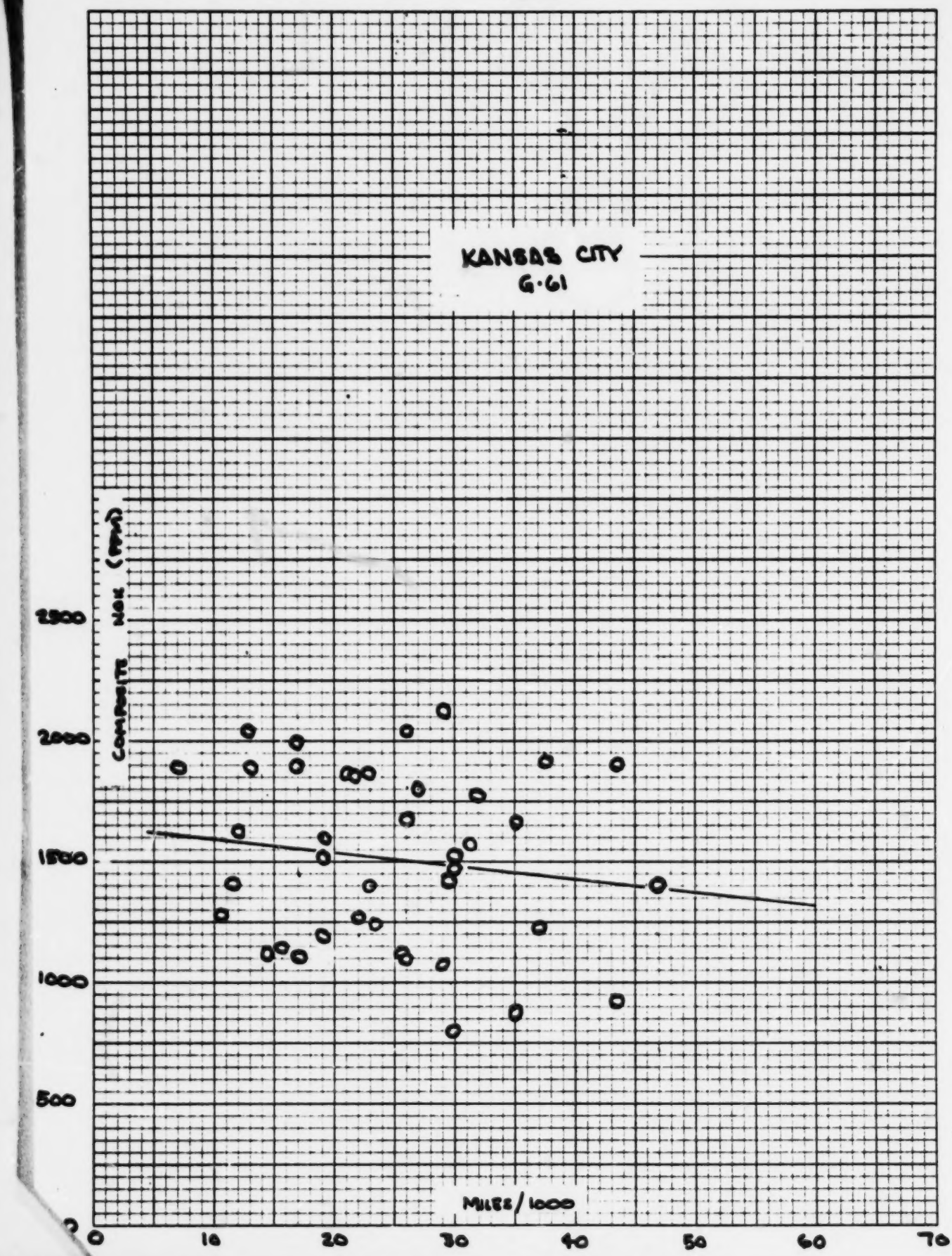
For this class Kansas City HC data show a statistically significant decrease with mileage (F = -6.61) supported by an almost significant value for Houston (F = -3.32); F = -7.36 for the combined cities. However, the standard of error of fit is 48.6 ppm, hardly lower than the standard deviation 50.6 ppm. Although "statistically" significant, the magnitude of the mileage effect is small. If the effect of mileage on hydrocarbons is really a decrease, we would expect the CO to also decrease and the NO_x to increase. These do not happen. The CO shows no effect of mileage and the NO_x shows no effect in Kansas City (F = -0.34), a significant decrease in Houston (F = -6.02), with a non-significant decrease (F = -2.79) in the combined cities.

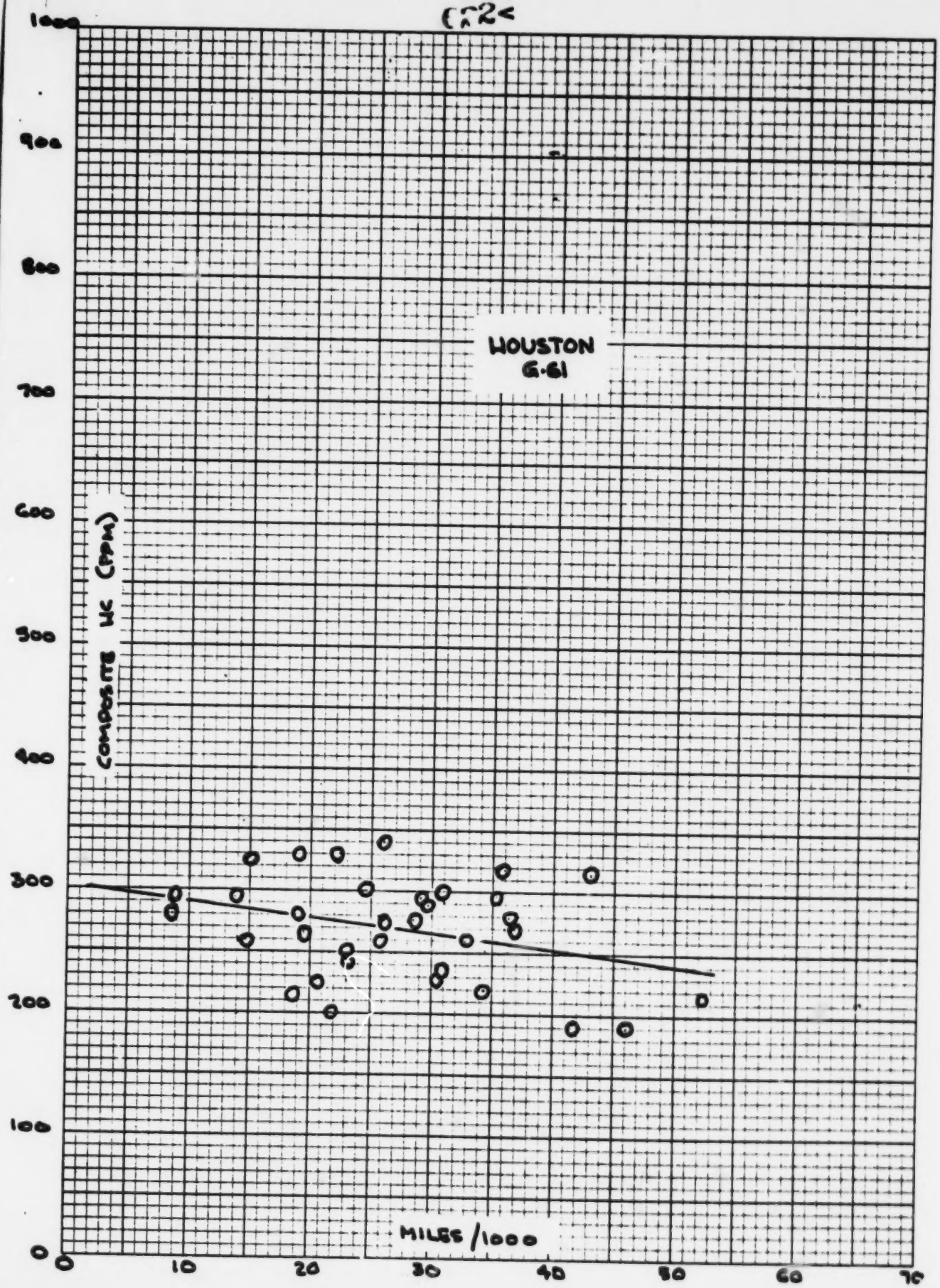
The decrease with mileage for HC does not appear to be a real effect considering the scattering of the data, the small difference between the standard deviation and the standard error of fit, and the lack of support from the CO and NO_x data.

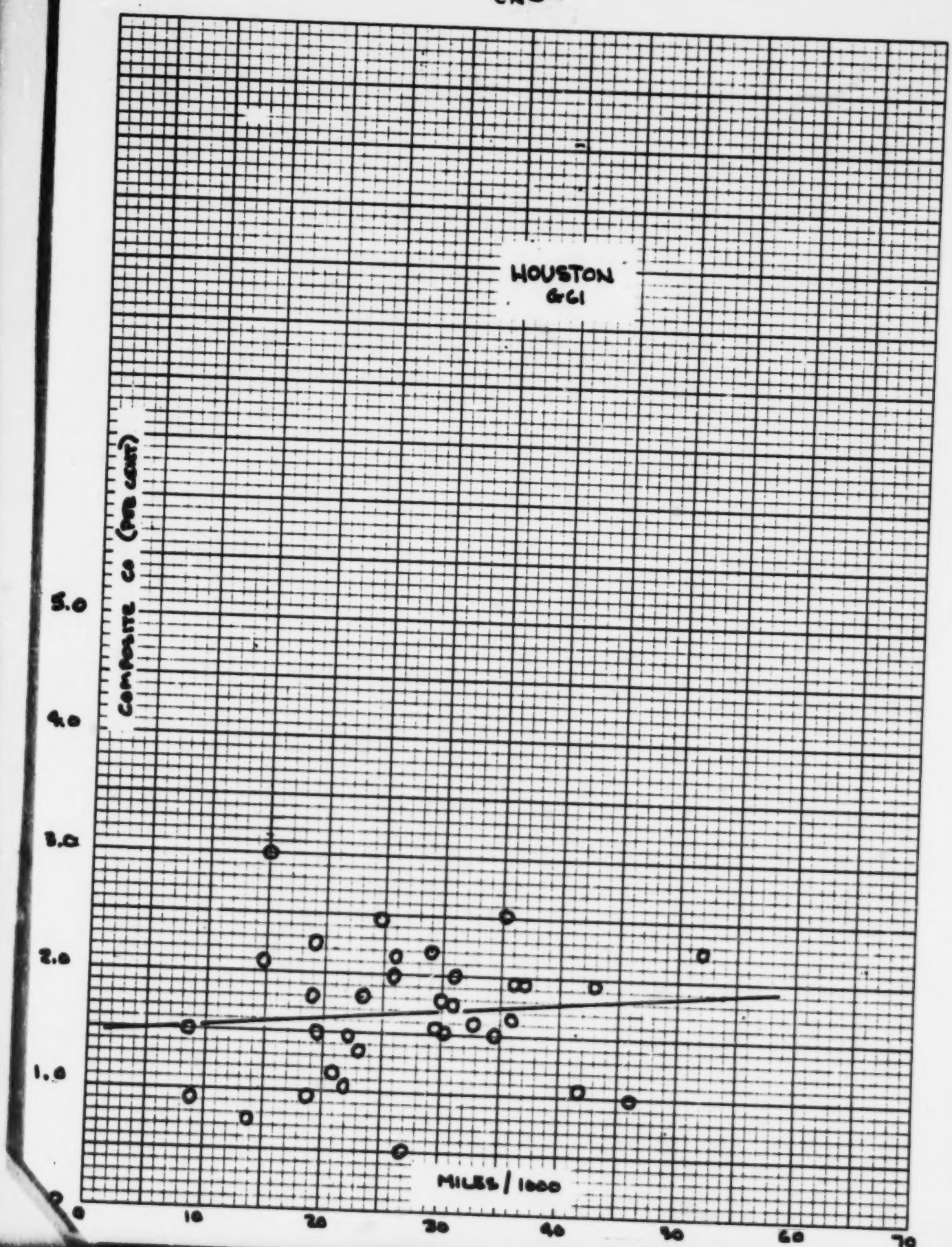
F19<


KANSAS CITY
CaG1
COMPOSITE HC (PPM)
1000
900
800
700
600
500
400
300
200
100
0
10
20
30
40
50
60
70
MILES/1000

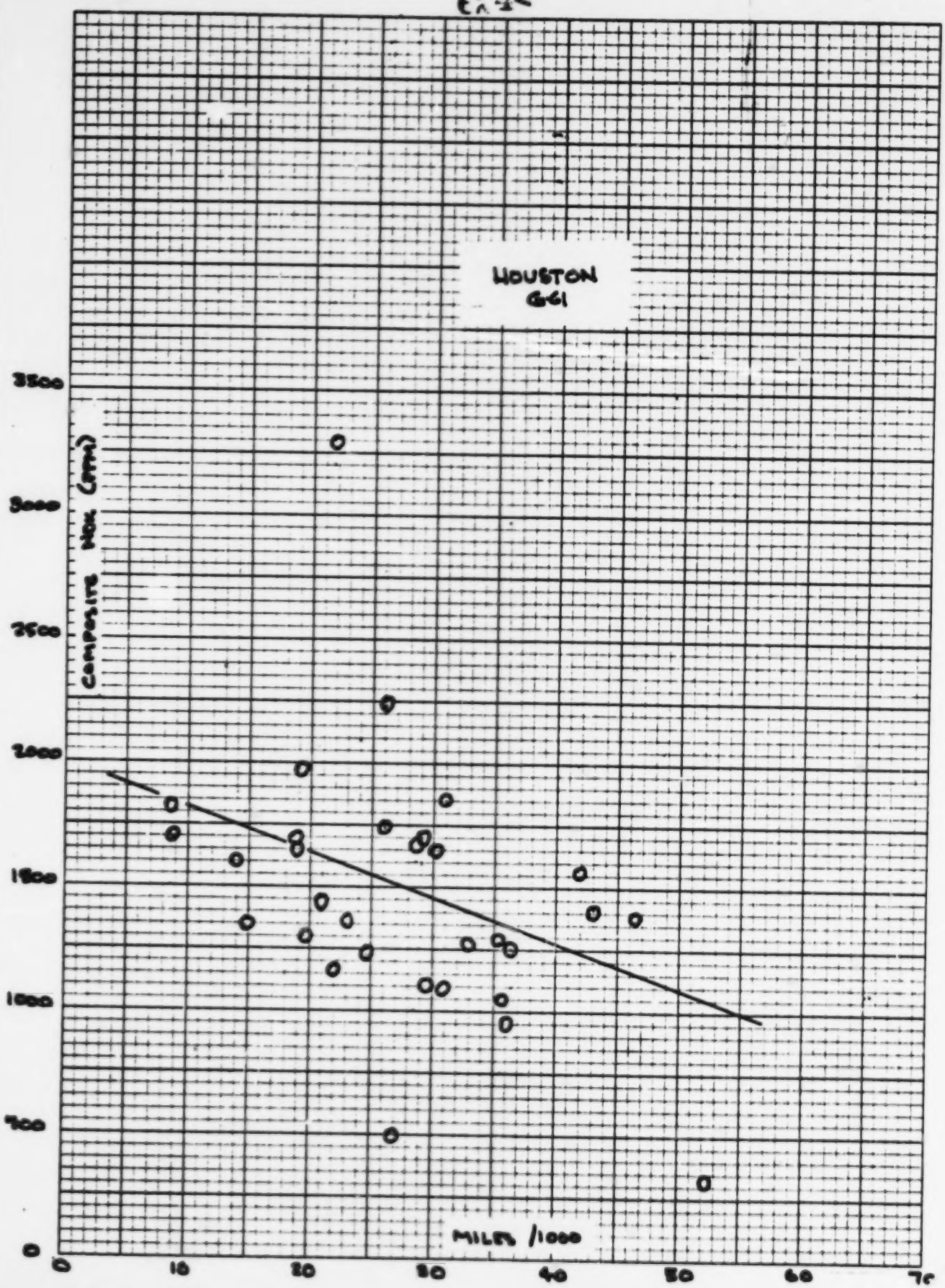

KANSAS CITY
G-61
COMPOSITE CO (PER CENT)
5.0
4.0
3.0
2.0
1.0
0
0
10
20
30
40
50
60
70
MILES /1000


KANSAS CITY
G·61
COMPOSITE WEAR (MM)
2500
2000
1500
1000
500
0
MILES/1000
0
10
20
30
40
50
60
70


HOUSTON
G-61
COMPOSITE HC (PPM)
MILES/1000
0
100
200
300
400
500
600
700
800
900
1000
0
10
20
30
40
50
60
70


HOUSTON
G-61
COMPOSITE CO (PER CENT)
5.0
4.0
3.0
2.0
1.0
0
0
10
20
30
40
50
60
70
MILES / 1000

EX-1<


HOUSTON
G-61
COMPOSITE WEAR (MILS)
3500
3000
2500
2000
1500
1000
500
0
MILES /1000
0
10
20
30
40
50
60
70

G-1.2.5 Data Plots - Class G71

Summary

Contradictory conclusions from data in Kansas City and Houston. No reason found.

	Kansas City			Houston		
	F	SD	SE Fit	F	SD	SE Fit
HC(a)	33.61**	135	96	0.03	45	46
CO	13.26**	0.94	0.81	0.01	0.84	0.85
NO_x	-9.39**	396	353	0.63	264	265

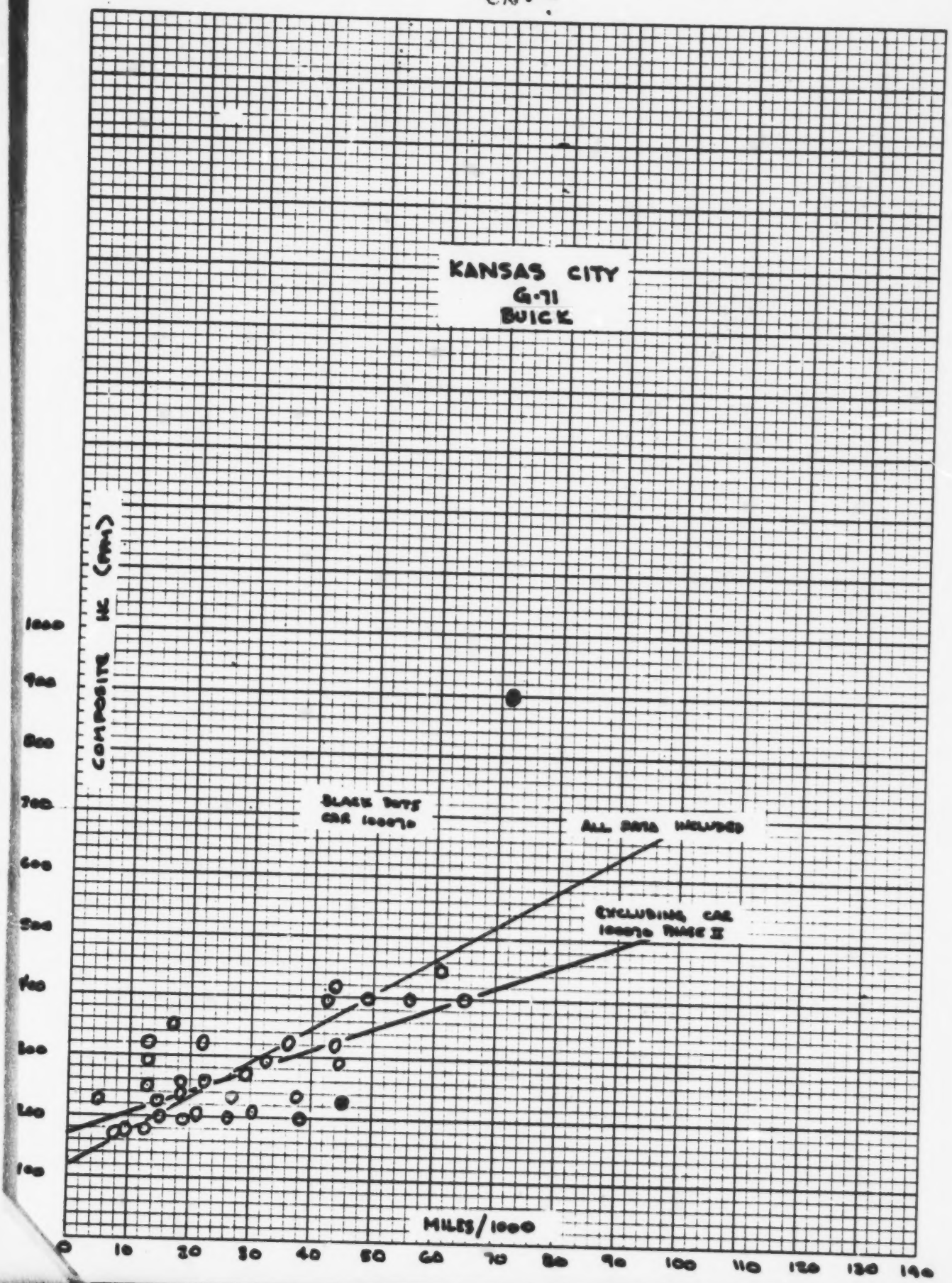
(a) excluding Car 100070, Phase II, 897 PPM

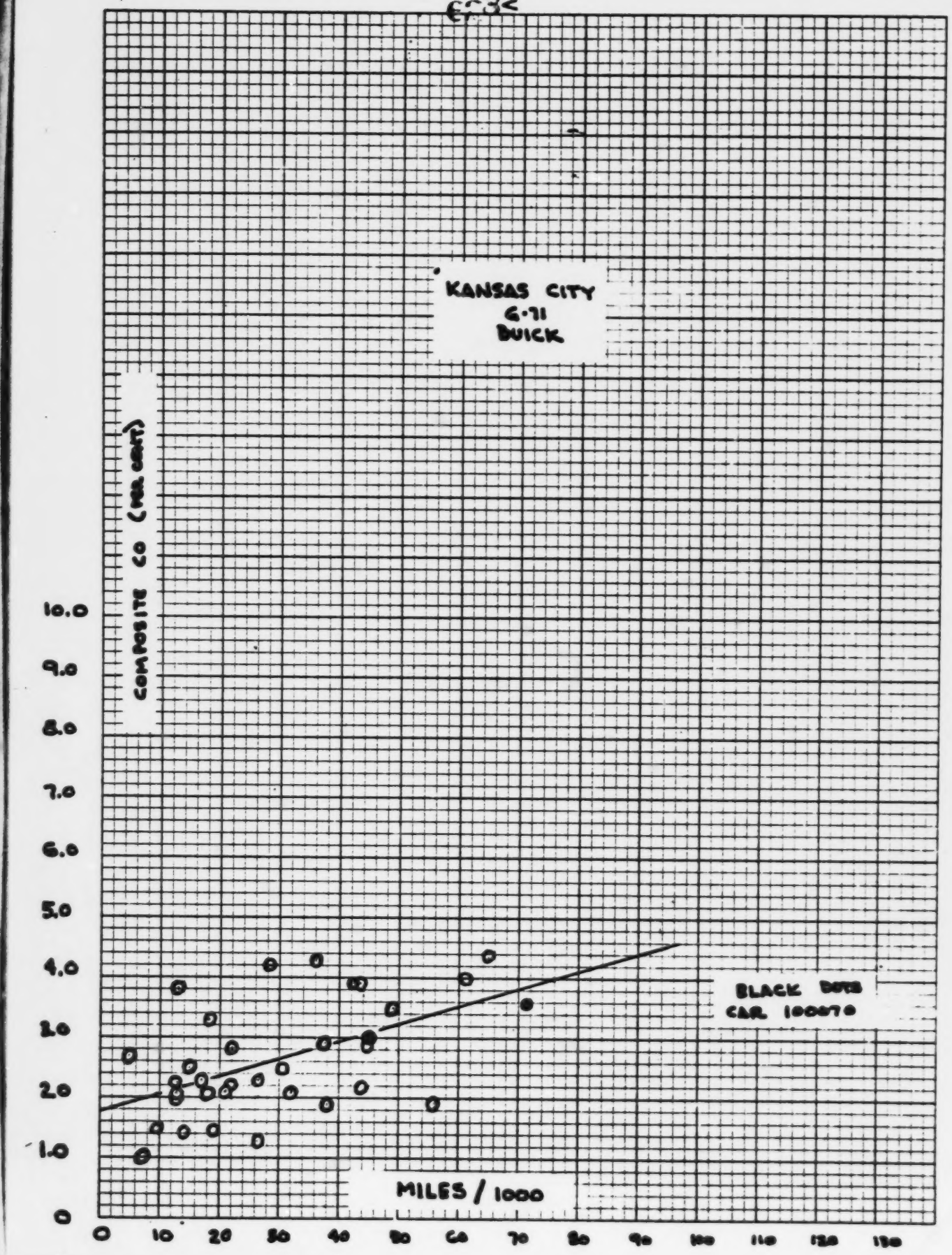
27.92** 83 62

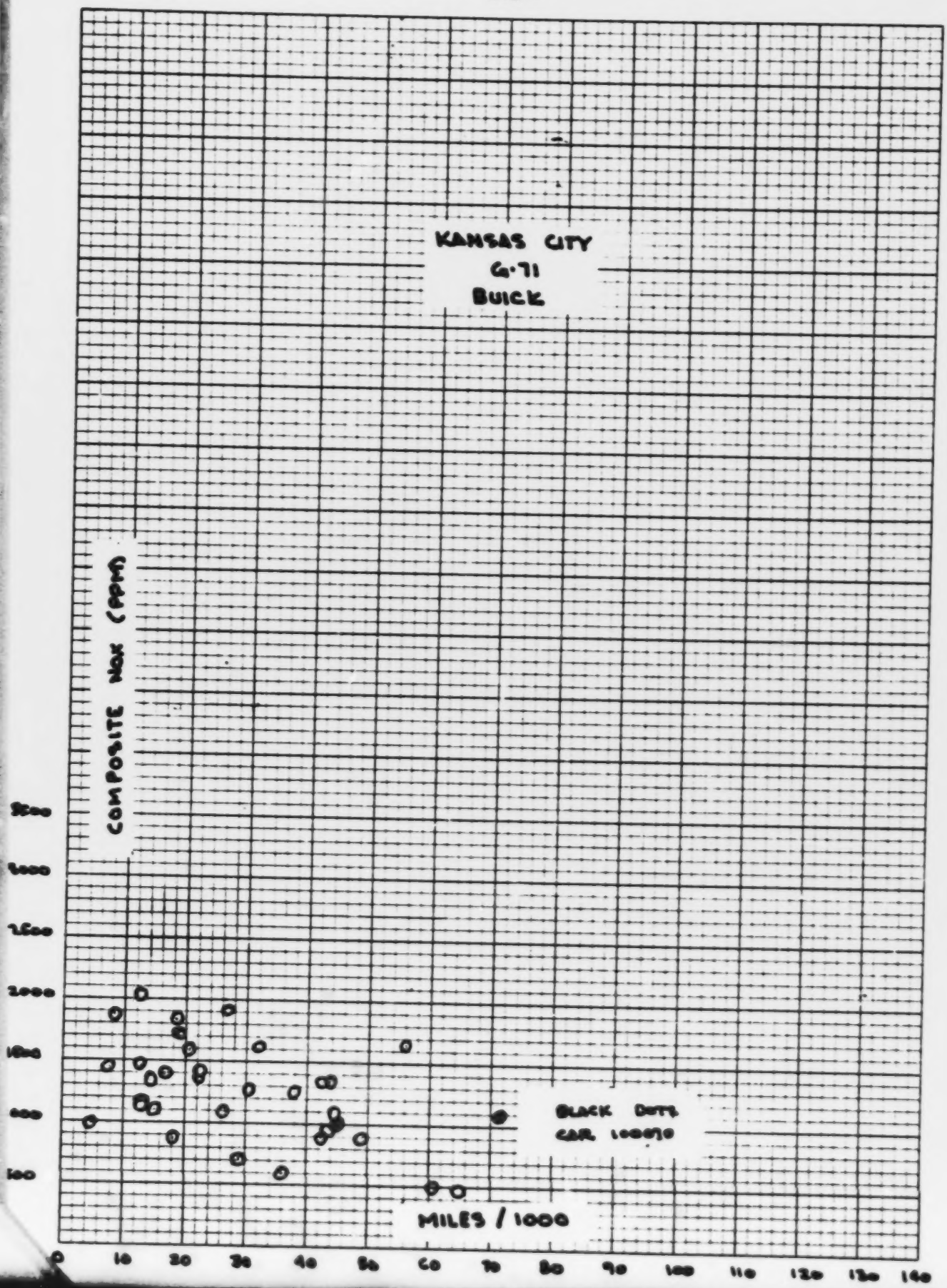
Discussion

The evidence is good and noncontradictory that mileage affects all three effluents for the Kansas City data (F = 33.61 for HC, F = 13.26 for CO, and F = -6.90 for NO_x). The spread of the data is large but the trends are unmistakable. There is an "outlier" point in the HC data set, 897 PPM for Car 100070, Phase II. Its removal has little effect on the upward trend with Mileage, F= 27.92. The standard error of fit is improved from 95.7 to 51.5 PPM.

The Houston data display no mileage effects whatsoever (F = -0.03, 0.01, -0.55). No reason could be found for this difference. The combined data for both cities have large F-values (F = 19.25, 9.59, and -9.21), thanks to the strong mileage effect in Kansas City.


KANSAS CITY
G-71
BUICK
COMPOSITE HC (ppm)
1000
900
800
700
600
500
400
300
200
100
BLACK DOTS
CAR 100070
ALL DATA INCLUDED
EXCLUDING CAR
100070 PHASE II
MILES/1000
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140


KANSAS CITY
6-71
BUICK
COMPOSITE CO (PERCENT)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
BLACK DOTS
CAR 100070
MILES / 1000
0
10
20
30
40
50
60
70
80
90
100
110
120
130


KANSAS CITY
G·71
BUICK
COMPOSITE NOx (PPM)
MILES / 1000
BLACK DOTS
CAR 100010
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140

G-1.2.6 Data Plots - Class G76

Summary

Houston data show a strong trend for CO (F = 62.13**) and NO_x (F = 9.51*) with no trend for Kansas City data. No explanation was found. Exclusion of car 200330 reinforces the trends

	Trend	Both Cities F	SD	SE Fit
HC	none(a)	2.54	44	43
CO	strong	33.50**	0.54	0.44
NO_x	moderate	5.66*	398	385

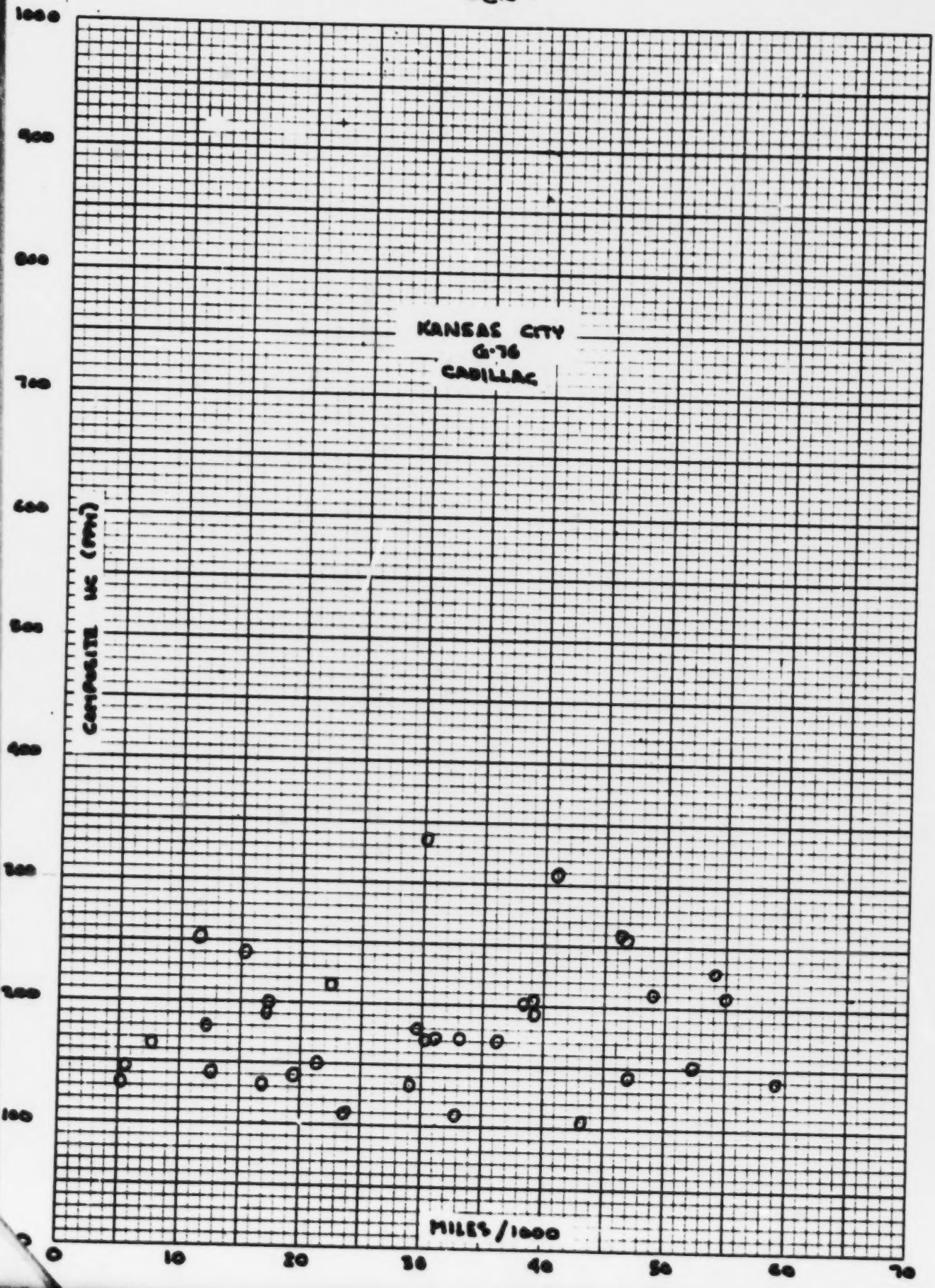
(a) excluding data for car 200330

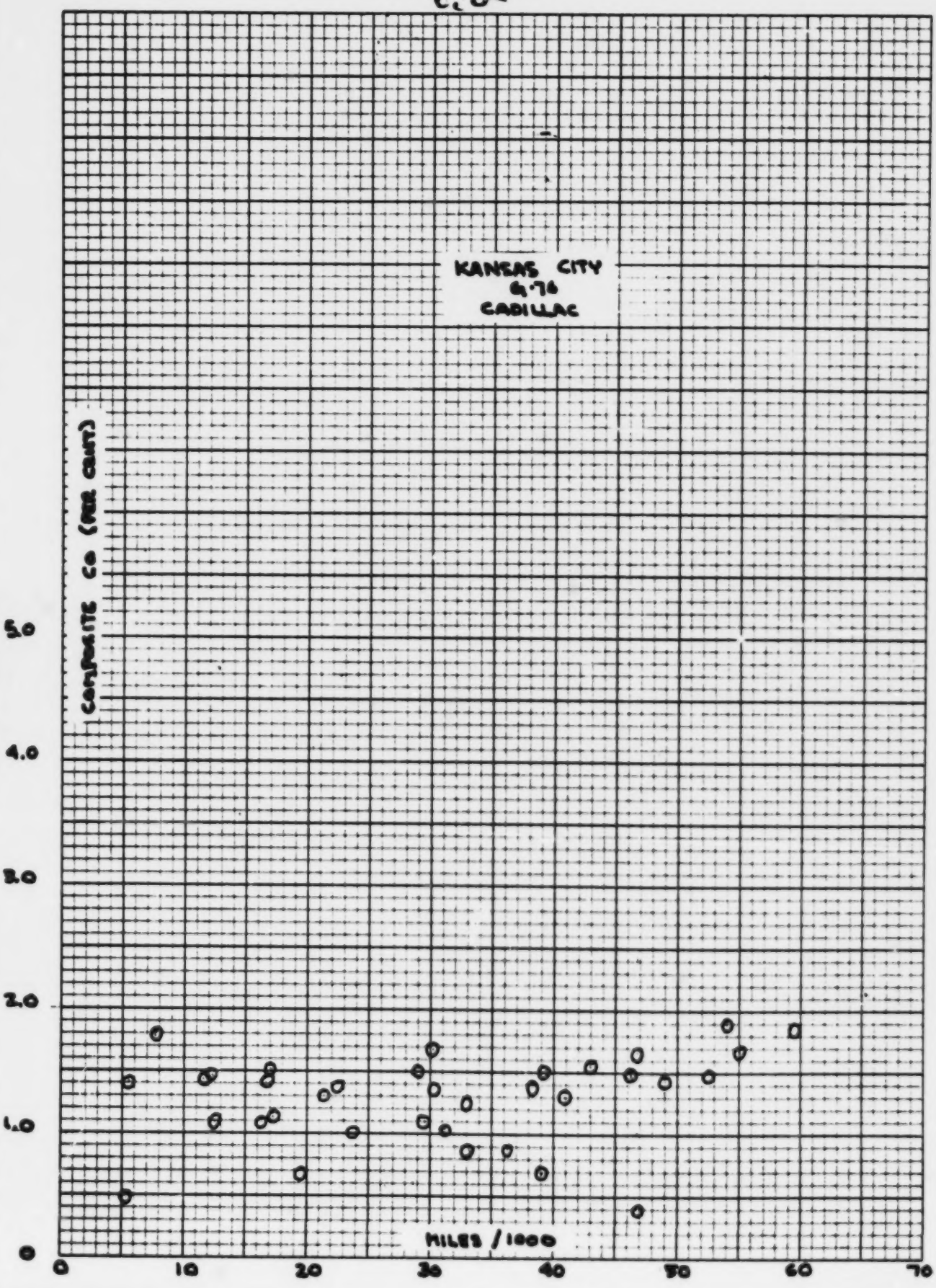
Discussion

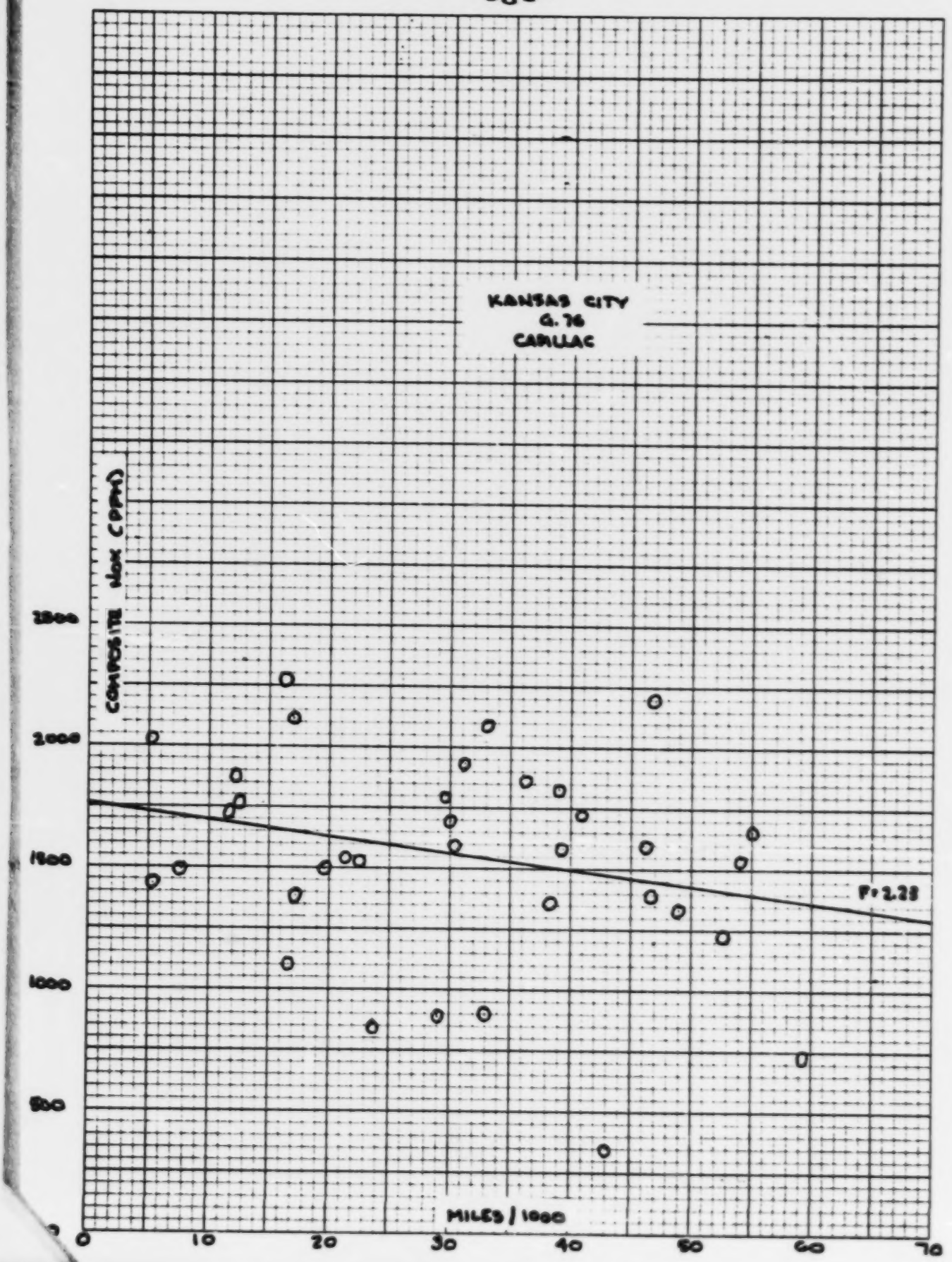
This Cadillac class has all cars equipped with air injector reactors. As a result, the HC are in good control. The range is 105 to 330 ppm for the Kansas City data with no mileage effect noted (F - 1.06, standard deviation 55 ppm, standard error of fit 54 ppm). Except for the Phase 2 and 3 data for car 200330 (713 and 371 ppm), the Houston data lie in an even tighter band 130 to 201 ppm, with the Phase 1 point for car 200330 at 173 ppm. Inclusion of the car 200330 data gives a completely false effect of mileage (F - 19.76, 100 ppm and 81 ppm). Removal gives F - 1.28,

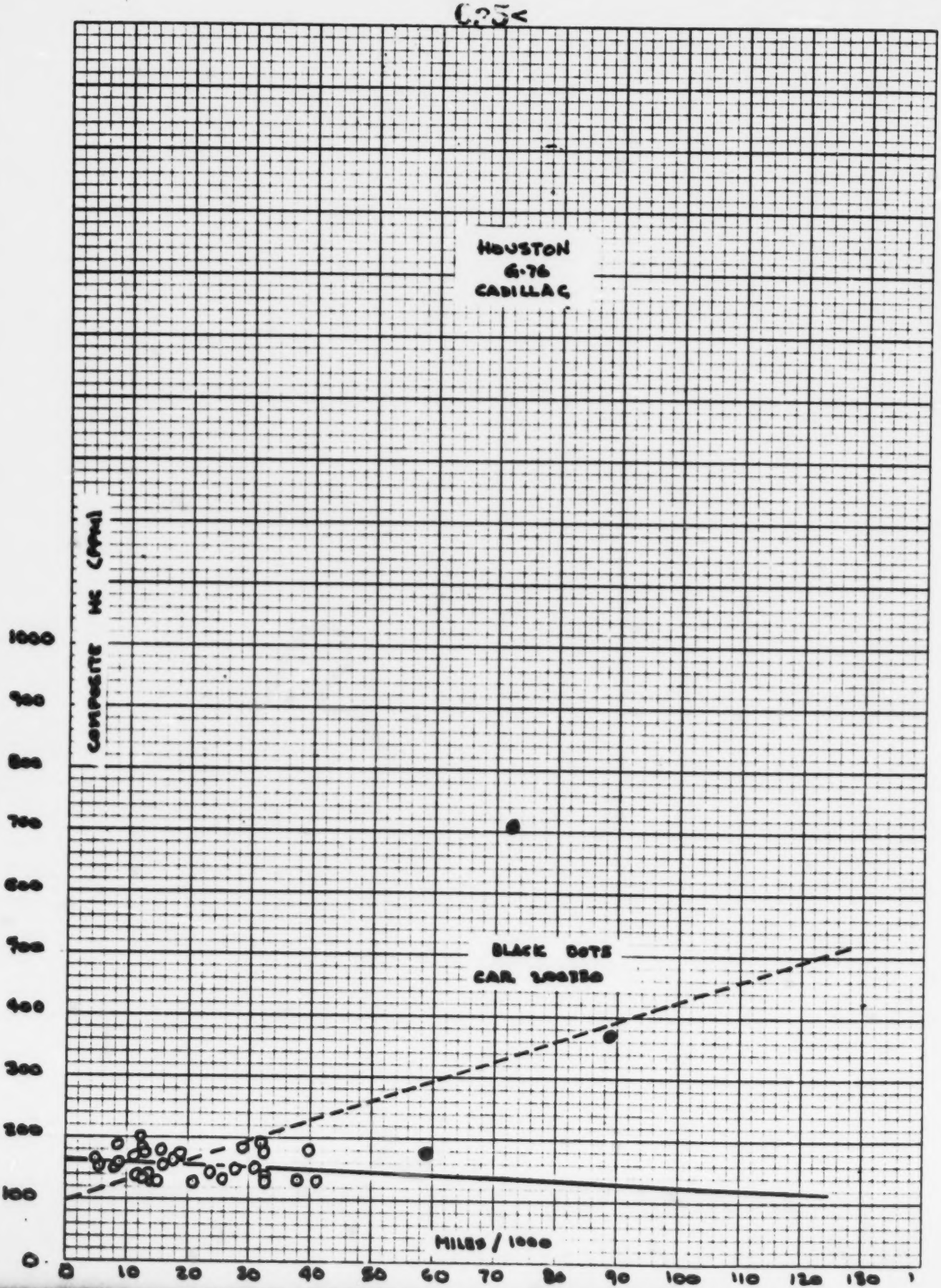
21 ppm and 21 ppm, so that there is now no effect of mileage for either Houston or for both cities combined (F = 2.54 with 66 degrees of freedom, 44 ppm and 43 ppm). This example shows the effect of a single vehicle in biasing a large set of data.

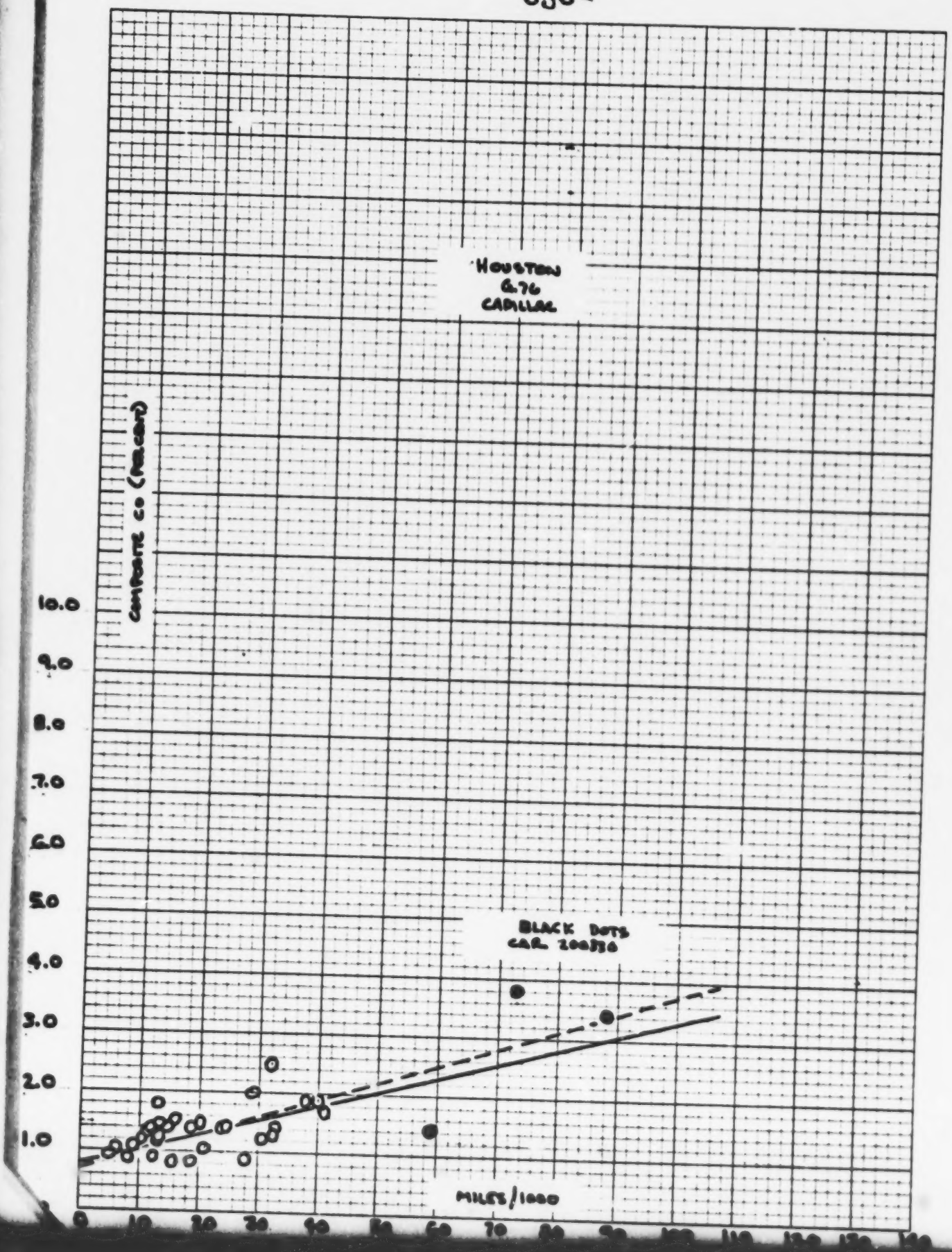
The Kansas City data for CO and NO_x show a very small, insignificant effect of mileage. For CO, F = 2.41, standard deviation 0.37 per cent CO and standard error of fit 0.36 per cent CO. For NO_x, F = -2.33, 414 ppm and 406 ppm. However, there is a well defined trend with miles for the Houston data. The data for car 200330, with data at mileages of 59106, 73048, and 88491, reinforced the linear trends observed at lower mileages. There is no obvious reason for the difference between the results in Kansas City and Houston for CO and NOx.

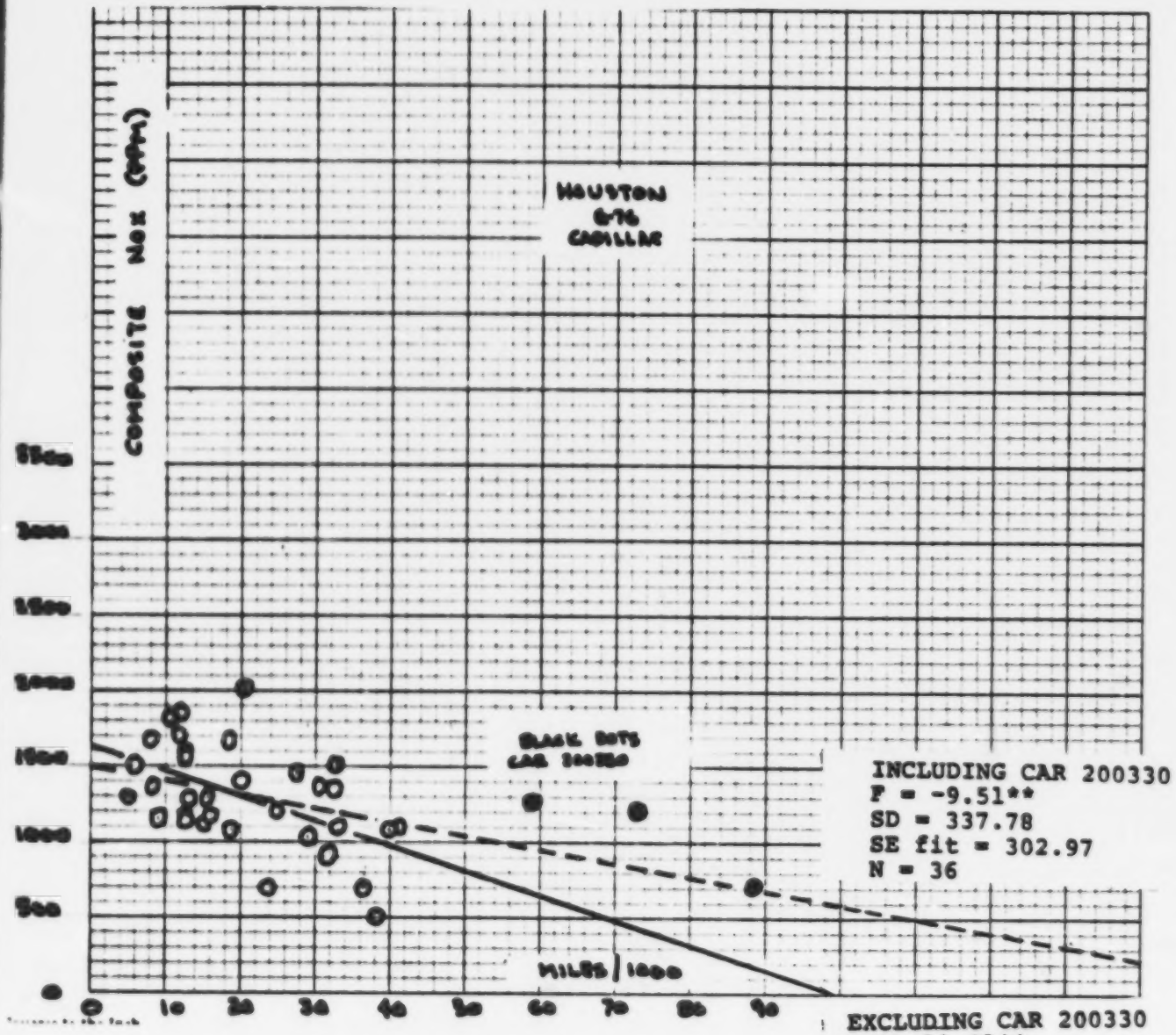

KANSAS CITY
G-76
CADILLAC
COMPOSITE HC (PPM)
MILES/1000
1000
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70

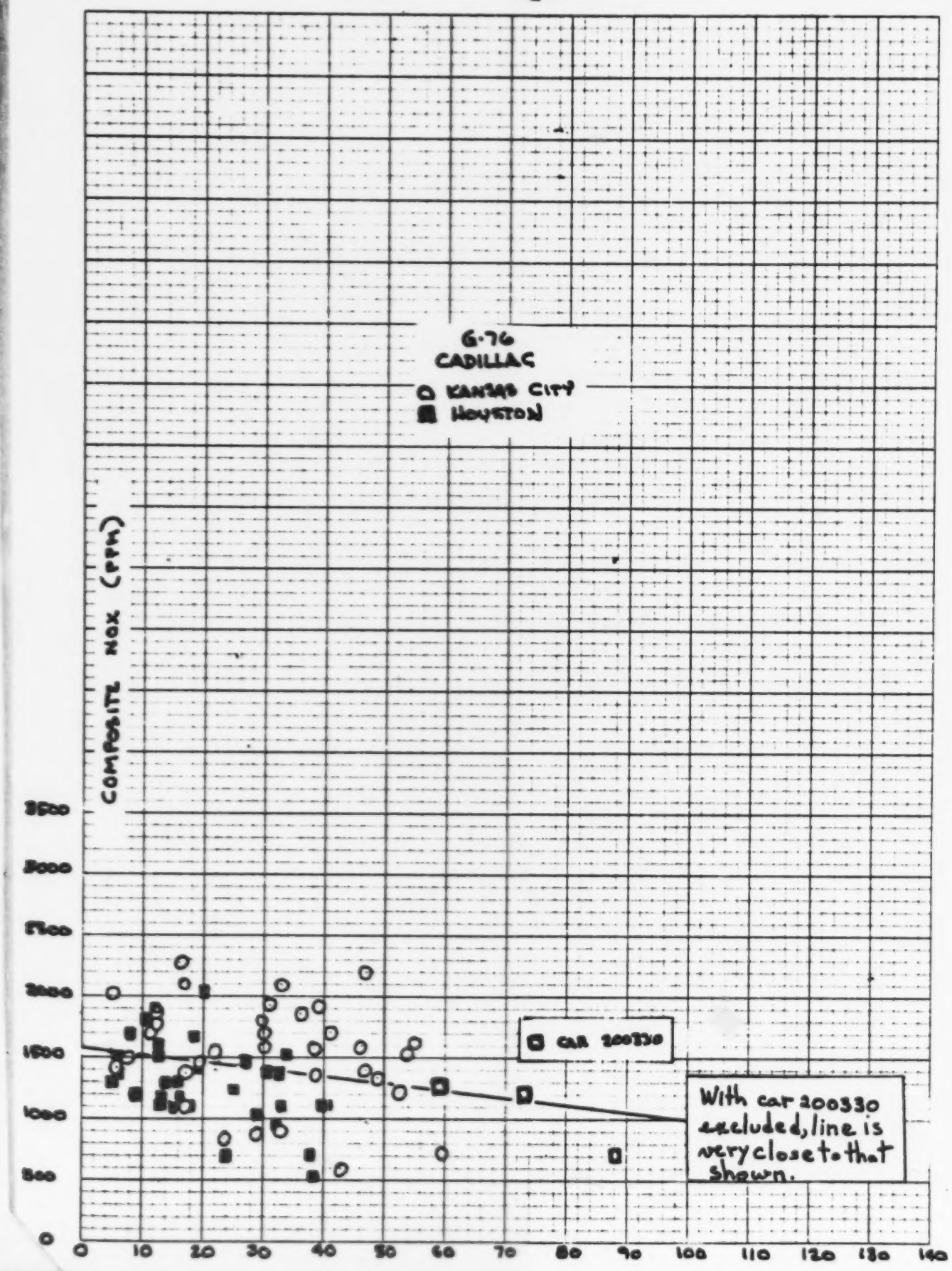

KANSAS CITY
9.76
CADILLAC
COMPOSITE CO (PER CENT)
5.0
4.0
3.0
2.0
1.0
0
MILES / 1000
0
10
20
30
40
50
60
70


KANSAS CITY
G.76
CADILLAC
COMPOSITE NOx (PPM)
2000
1500
1000
500
0
10
20
30
40
50
60
70
MILES / 1000
F=2.28


HOUSTON
6-76
CADILLAC
COMPOSITE HC (PPM)
1000
900
800
700
600
500
400
300
200
100
0
BLACK DOTS
CAR 100330
MILES / 1000
0
10
20
30
40
50
60
70
80
90
100
110
120
130


HOUSTON
6.76
CAPILLAR
CARBON CO (PERCENT)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
BLACK DOTS
CAR. 200336
MILES/1000
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140


COMPOSITE NOX (PPM)
HOUSTON
'76
CADILLAC
BLACK DOTS
MILES / 1000
INCLUDING CAR 200330
F = -9.51**
SD = 337.78
SE fit = 302.97
N = 36
EXCLUDING CAR 200330
F = -11.01**
SD = 338.51
SE fit = 295.45
N = 33


6.76
CADILLAC
KANSAS CITY
HOUSTON
COMPOSITE NOX (PPM)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
CAR 200330
With car 200330 excluded, line is very close to that shown.

G-1.2.7 Data Plot - Classes V81 and V82

Summary

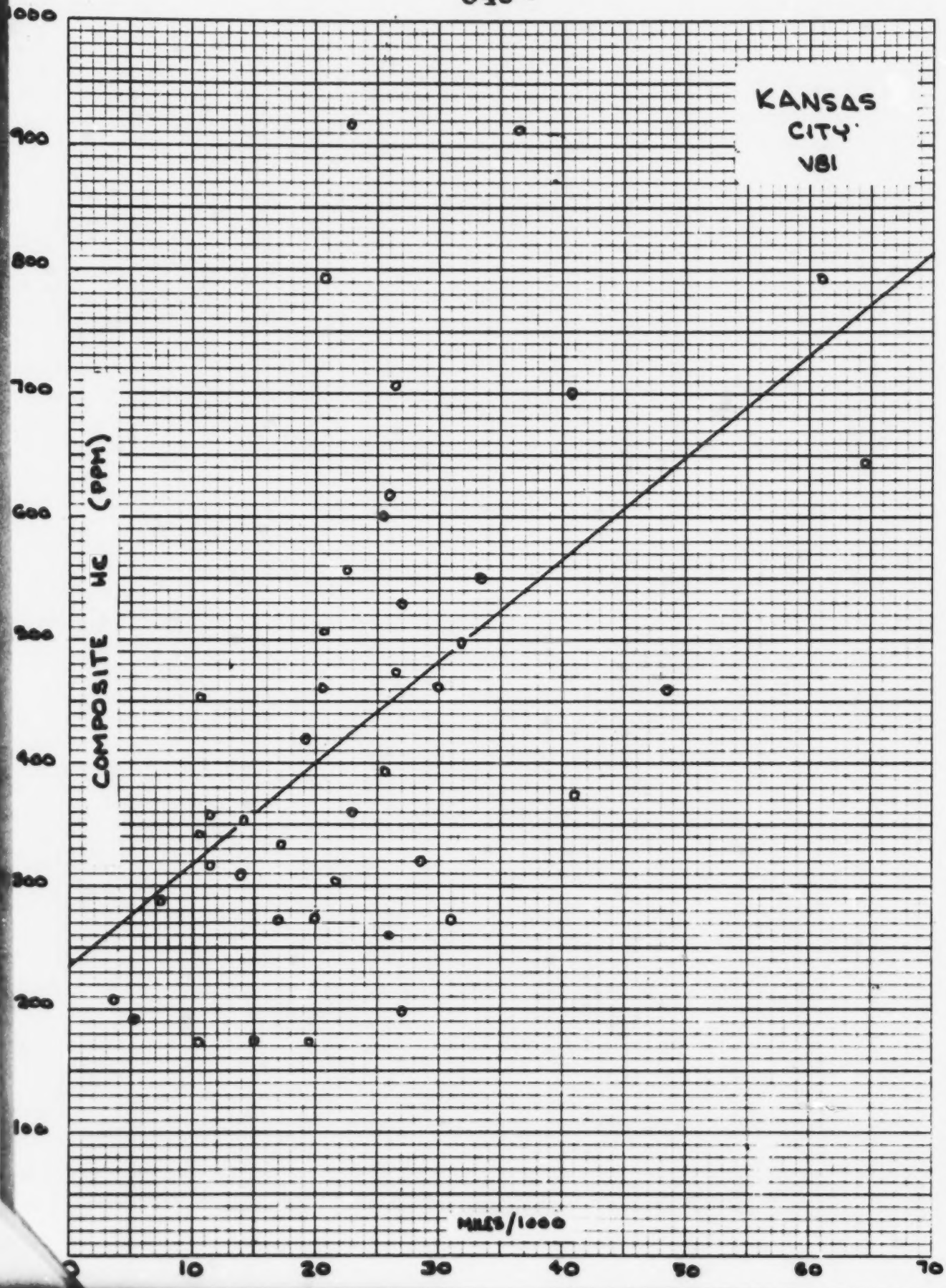
The effluent levels for these Volkswagen classes are highly variable but the linear trends with mileage appear to be genuine.

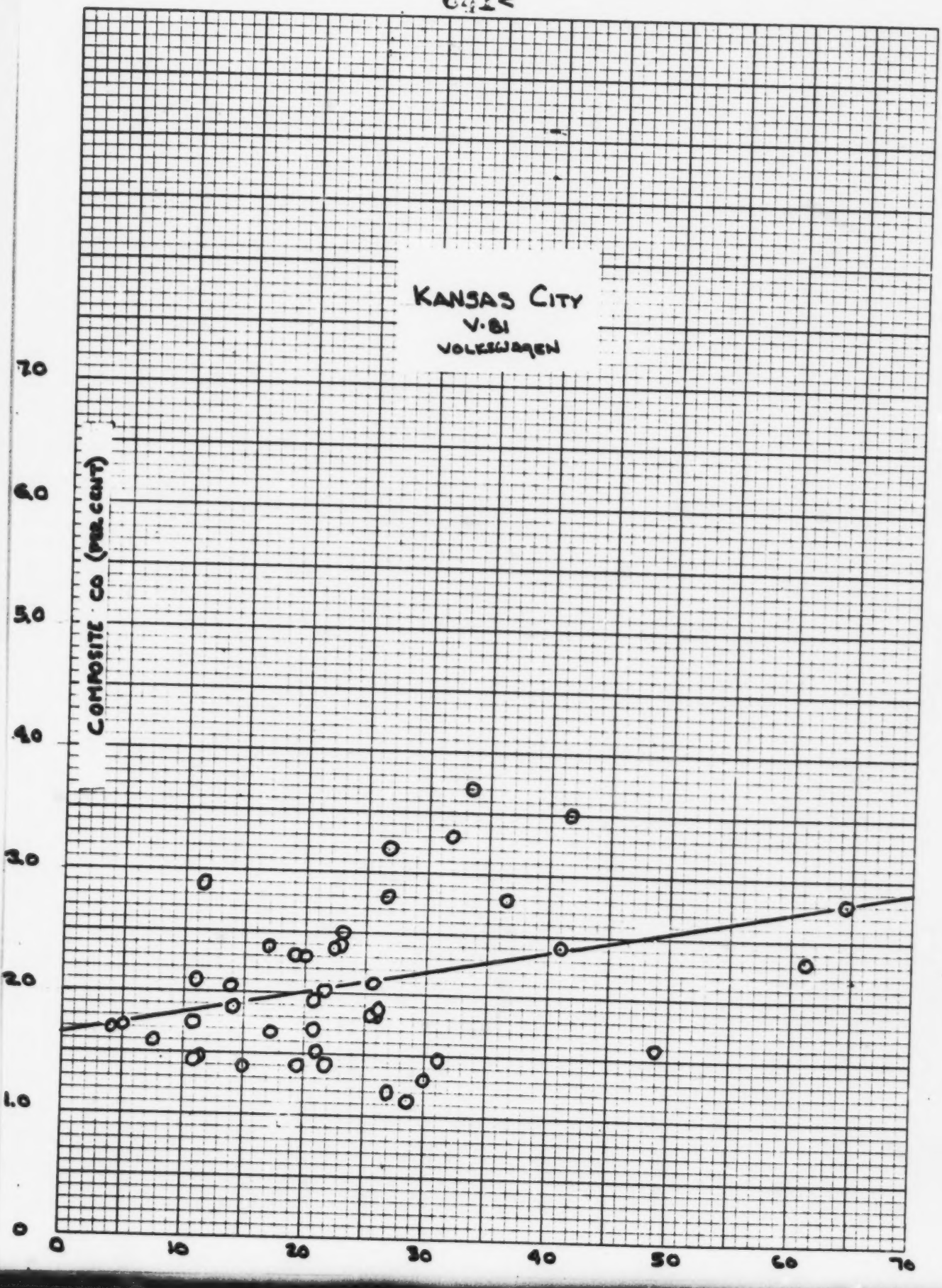
Both Cities	Class V81			Class V82		
	F	SD	SE fit	F	SD	SE fit
HC	20.73**	474	424	23.69**	332	288
CO	7.89**	1.28	1.23	3.46	1.18	1.16
NO_x	-19.04**	415	372	-7.07**	590	565

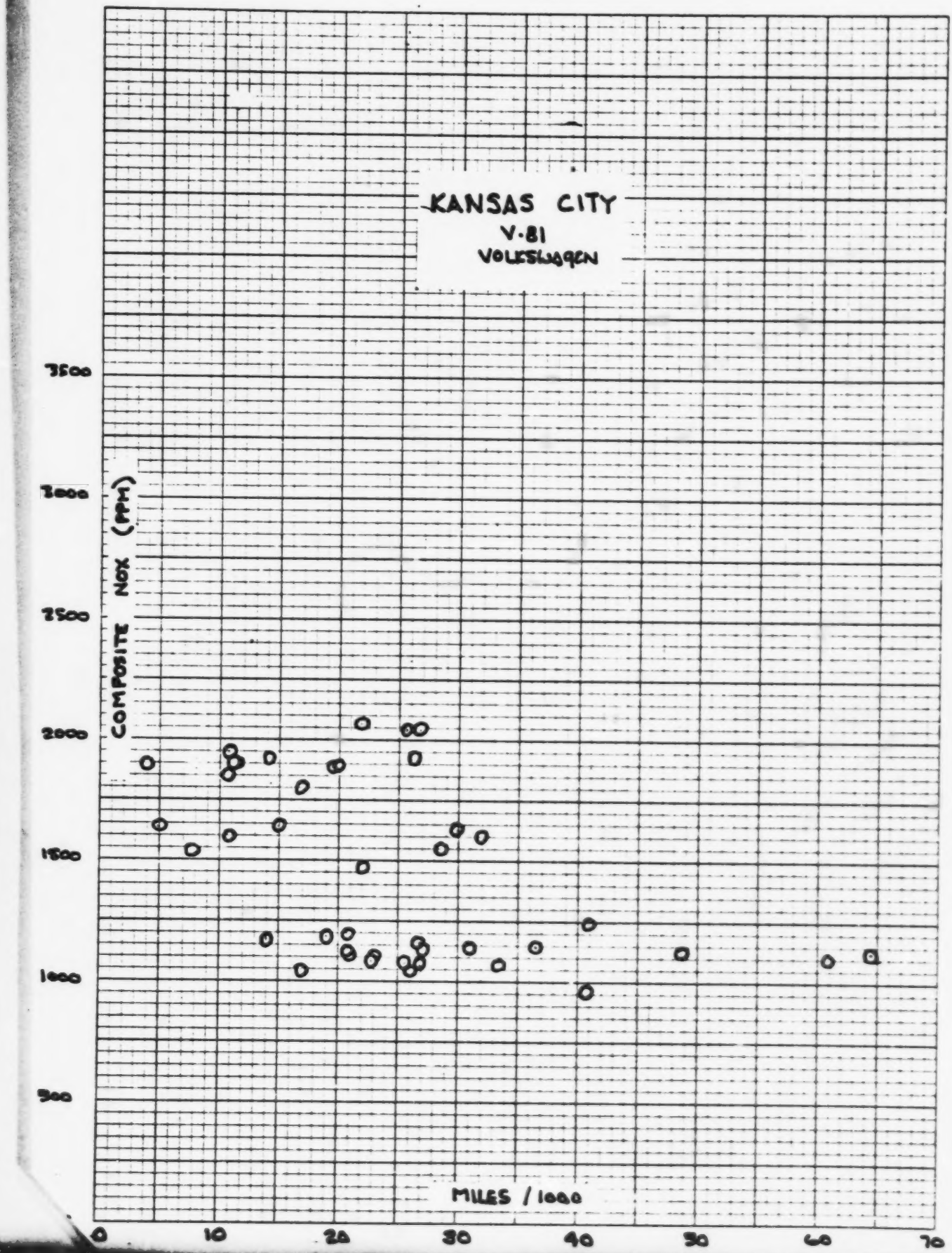
Discussion

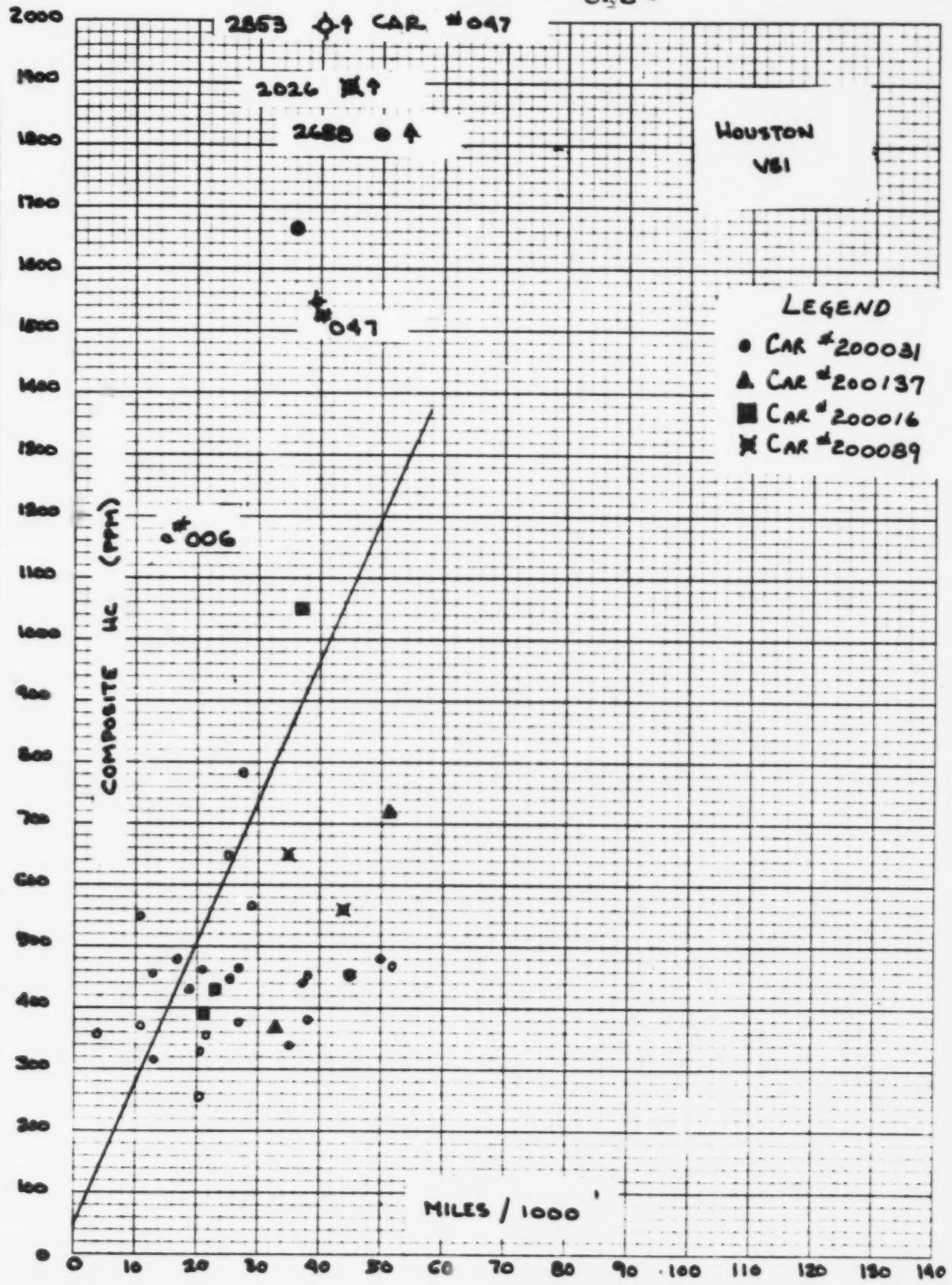
The Volkswagen data are not well defined in both cities. The HC data have strong mileage effects as do the NO_x levels (except for V82, Kansas City with F = -2.94). However, only V81, Kansas City has a significant mileage trend for CO. A number of individual cars have extra large values for CO in Houston but it is difficult to evaluate their effect.

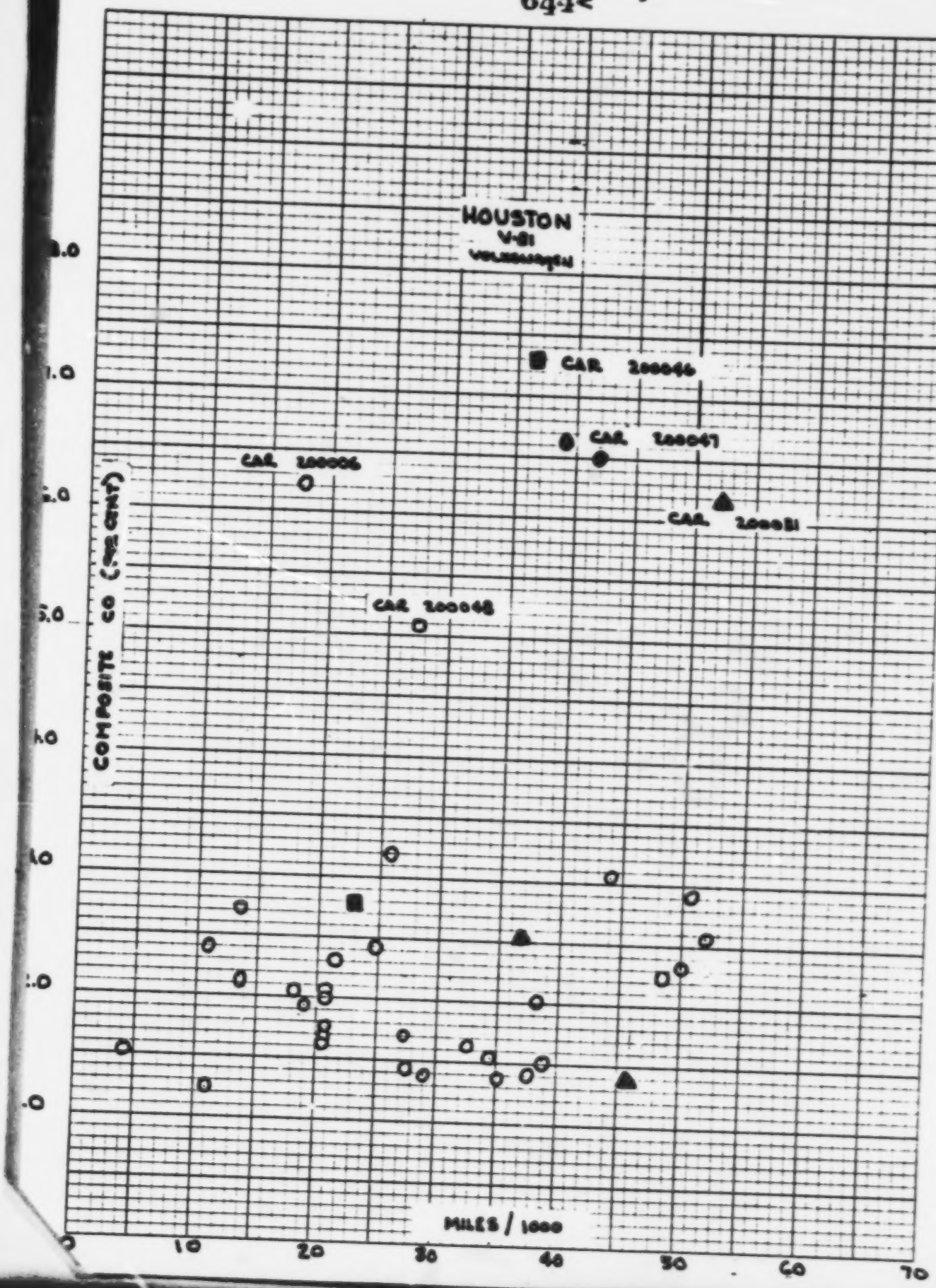
It is difficult to be sure of anything about these data except that they are highly variable. The HC values increase and the NO_x values decrease with mileage, but the complementary effects for CO must be hidden among the variability.

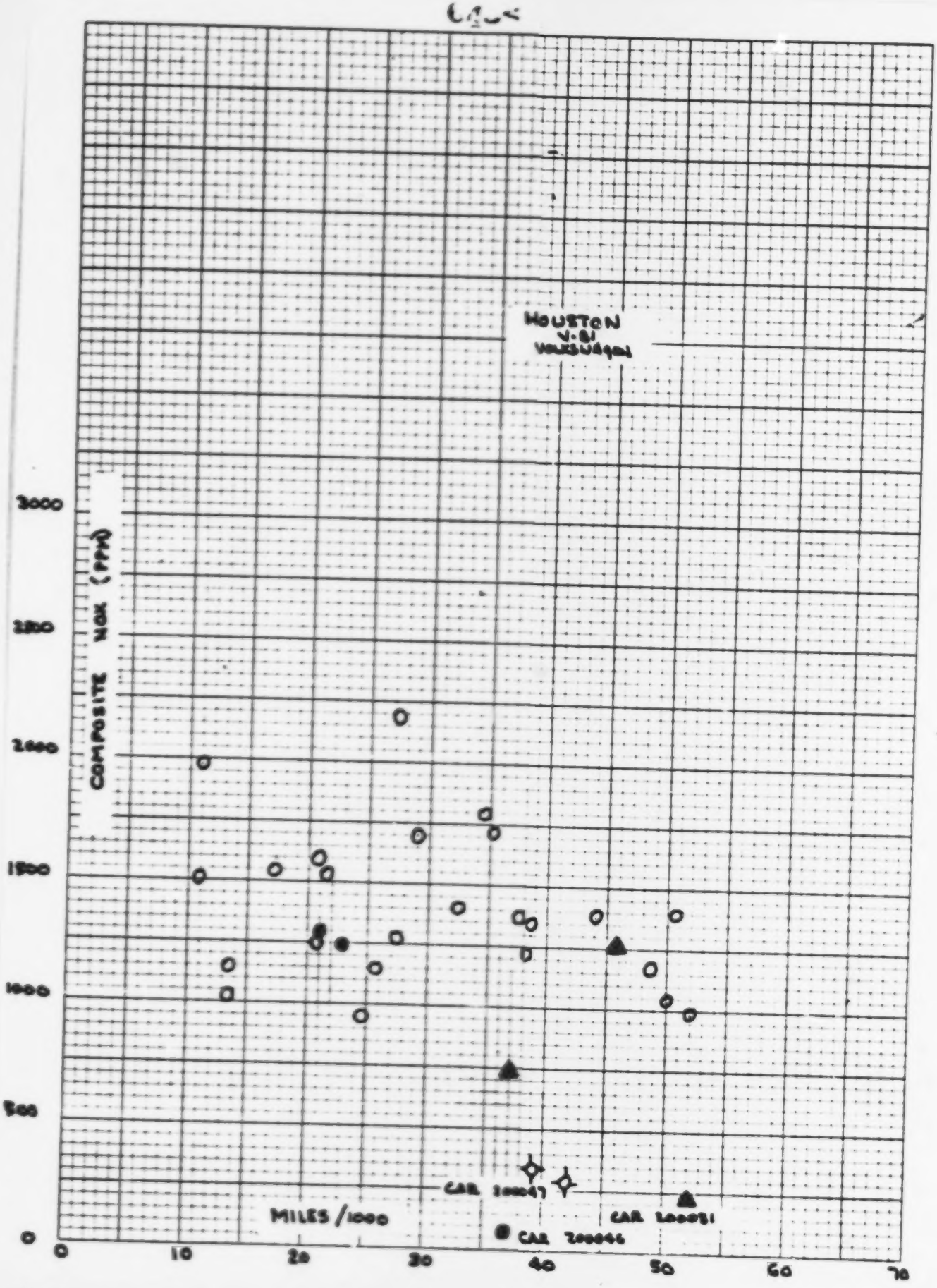

KANSAS
CITY
V81
COMPOSITE HC (PPM)
MILES/1000
1000
900
800
700
600
500
400
300
200
100
0
10
20
30
40
50
60
70

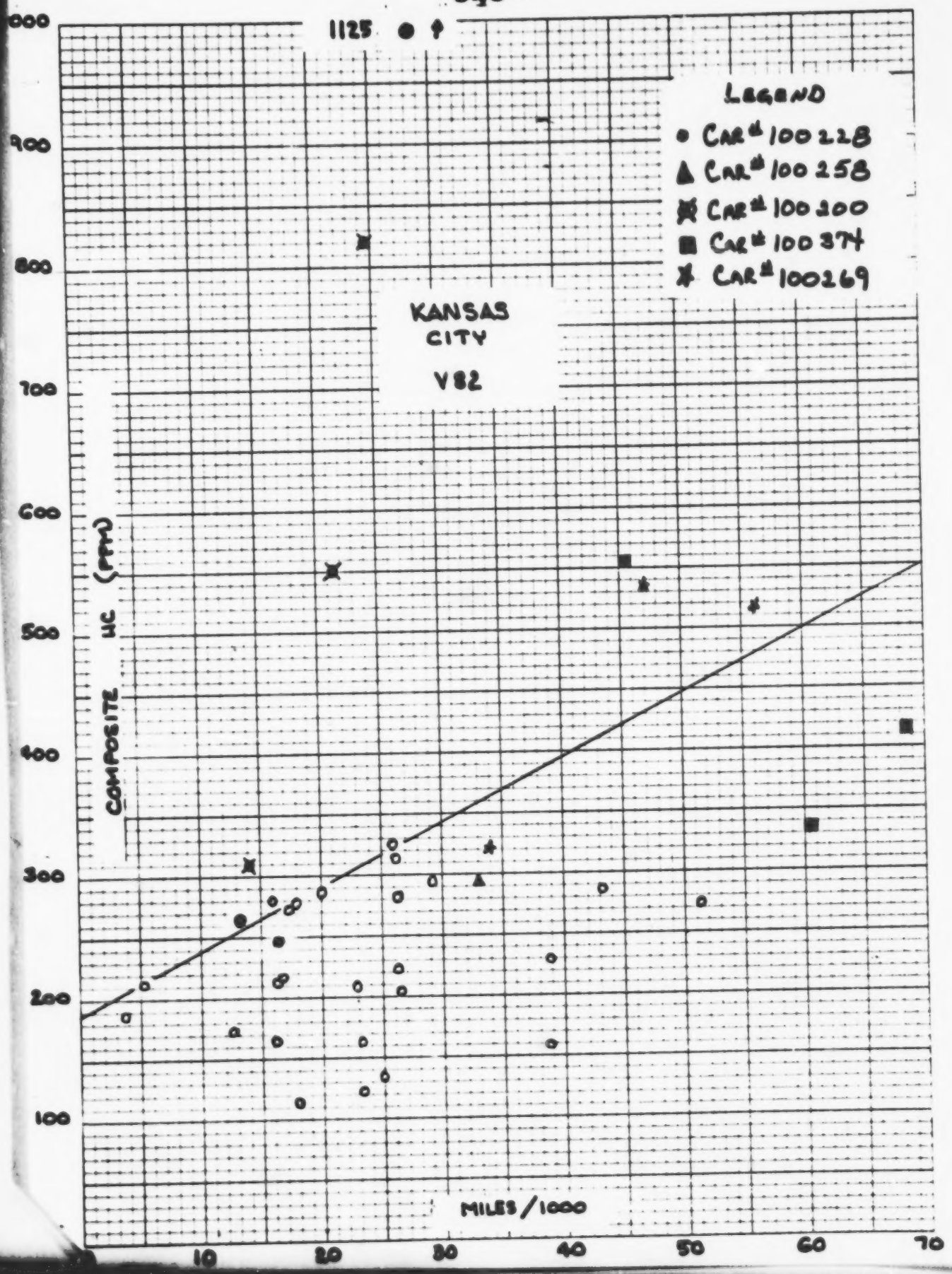

KANSAS CITY
V-8I
VOLKSWAGEN
COMPOSITE CO (PER CENT)
70
60
50
40
30
20
1.0
0
0
10
20
30
40
50
60
70

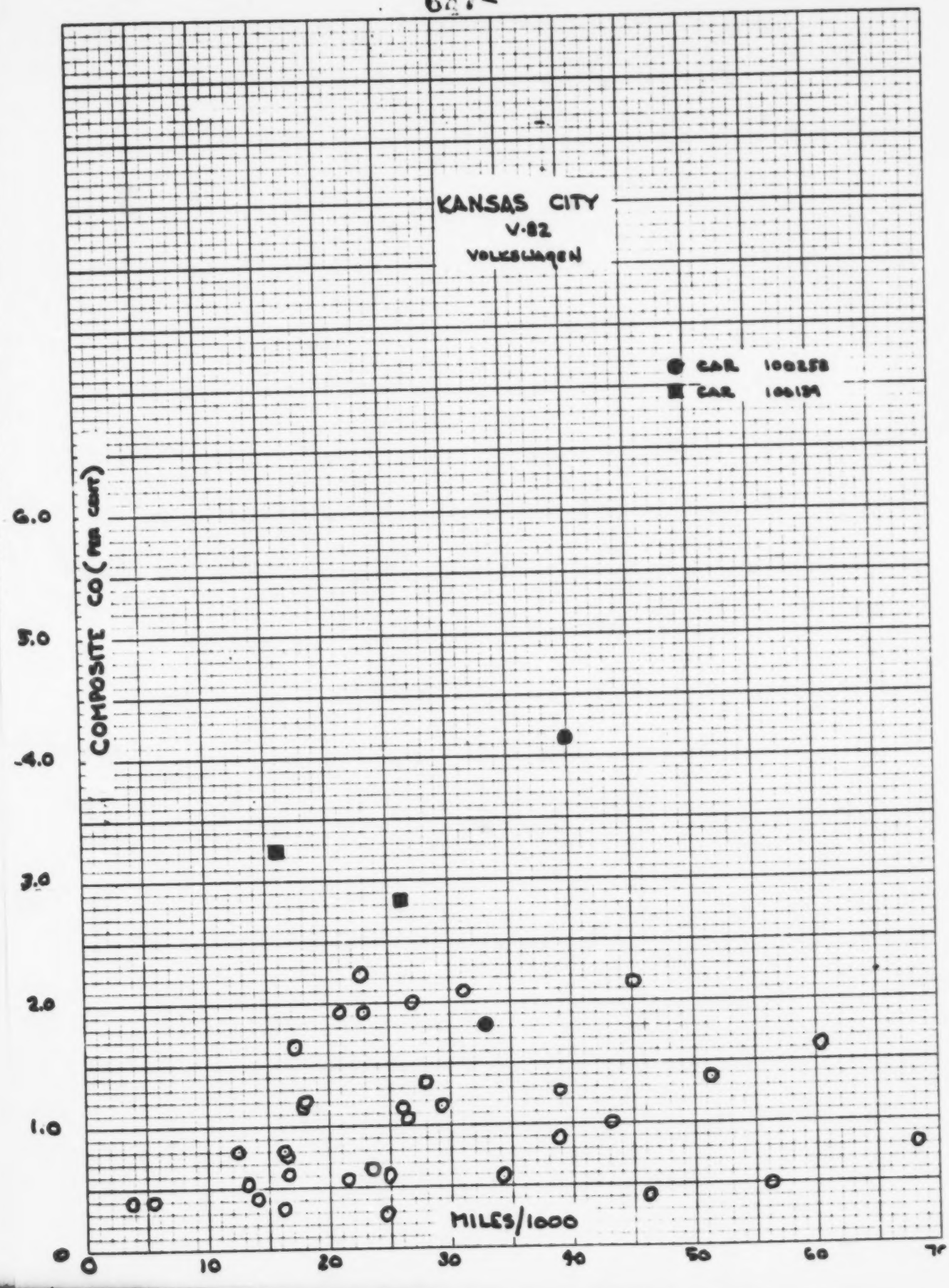

KANSAS CITY
V-81
VOLKSWAGEN
COMPOSITE NOX (PPM)
3500
3000
2500
2000
1500
1000
500
MILES / 1000
0
10
20
30
40
50
60
70

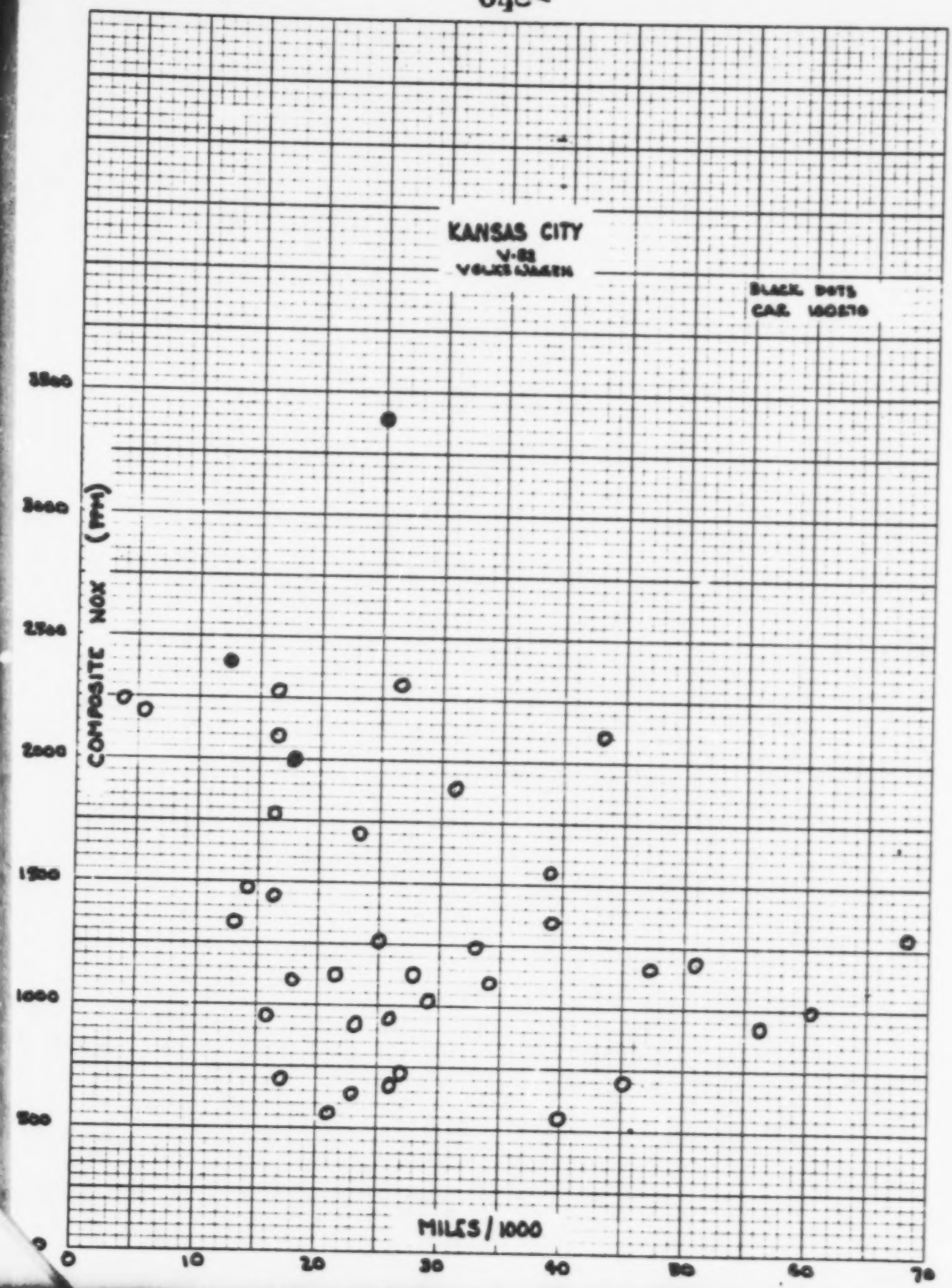

2853 CAR #047
2026
2688
#047
#006
HOUSTON
V81
LEGEND
CAR #200031
CAR #200137
CAR #200016
CAR #200089
COMPOSITE HC (PPM)
MILES / 1000
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140

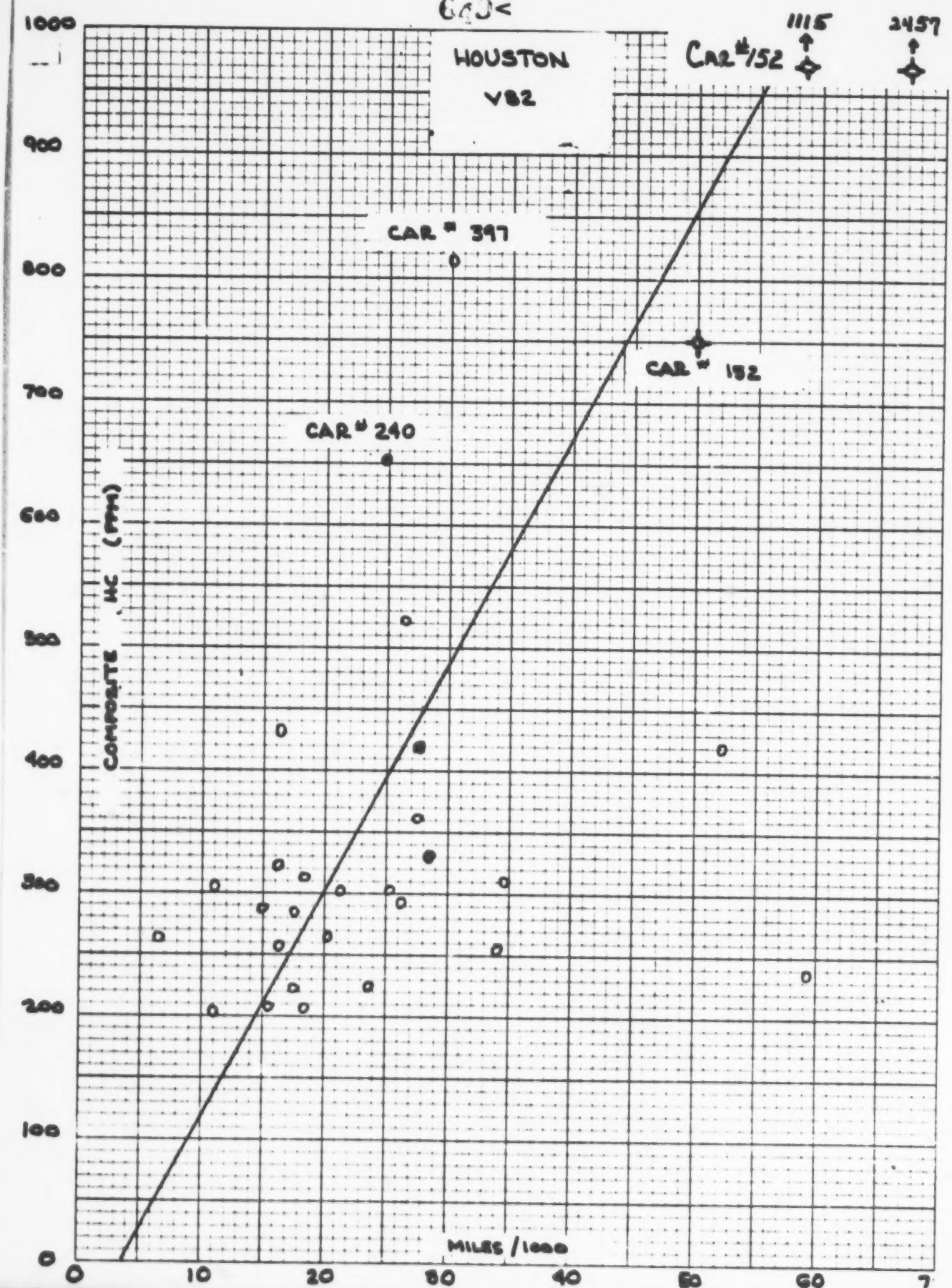

HOUSTON
V-81
CAR 200046
CAR 200047
CAR 200006
CAR 200081
CAR 200048
COMPOSITE CO (PERCENT)
MILES / 1000
0
10
20
30
40
50
60
70

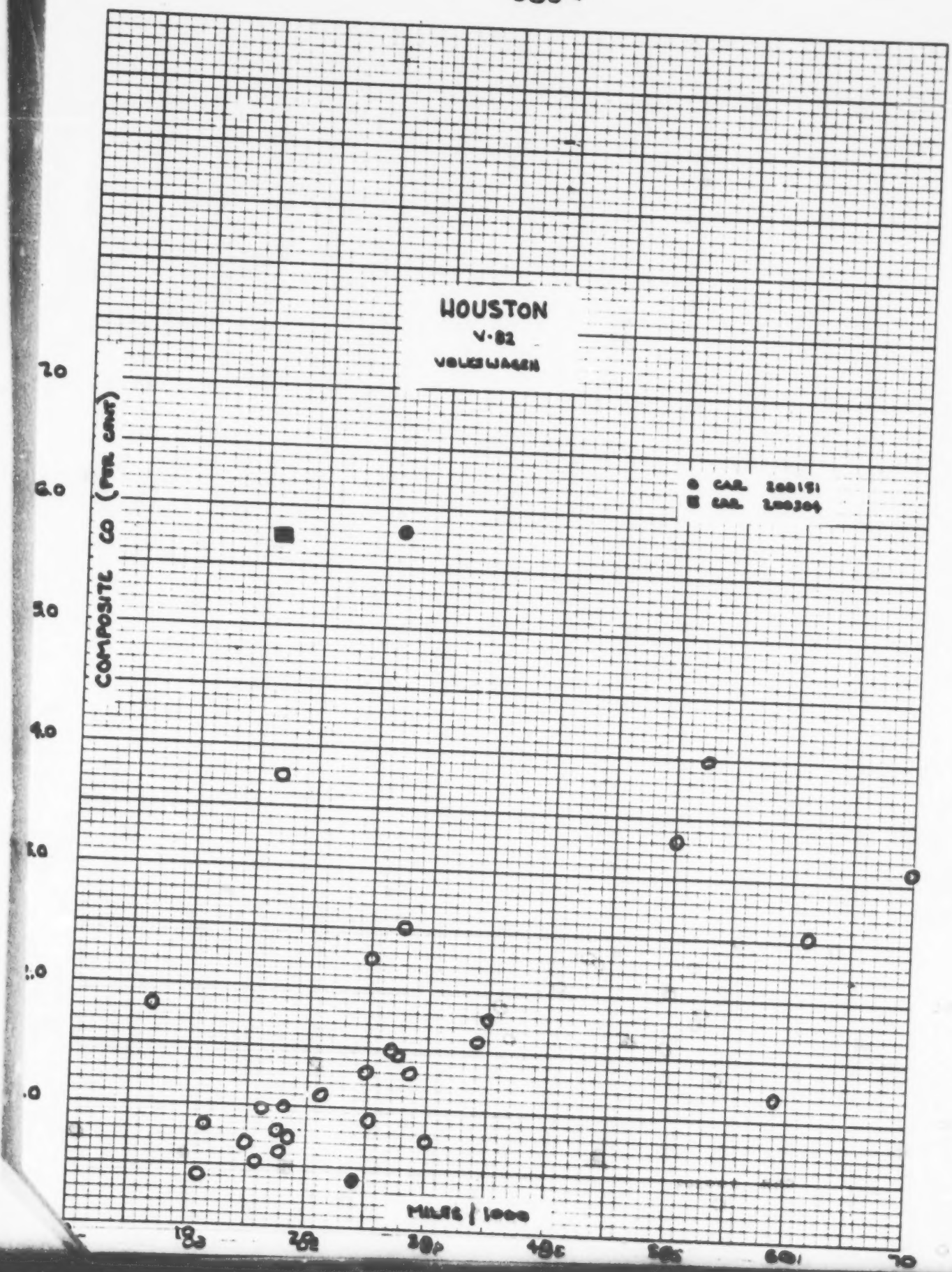

HOUSTON
V-81
COMPOSITE HOX (PPM)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
MILES/1000
CAR 200047
CAR 200046
CAR 200081

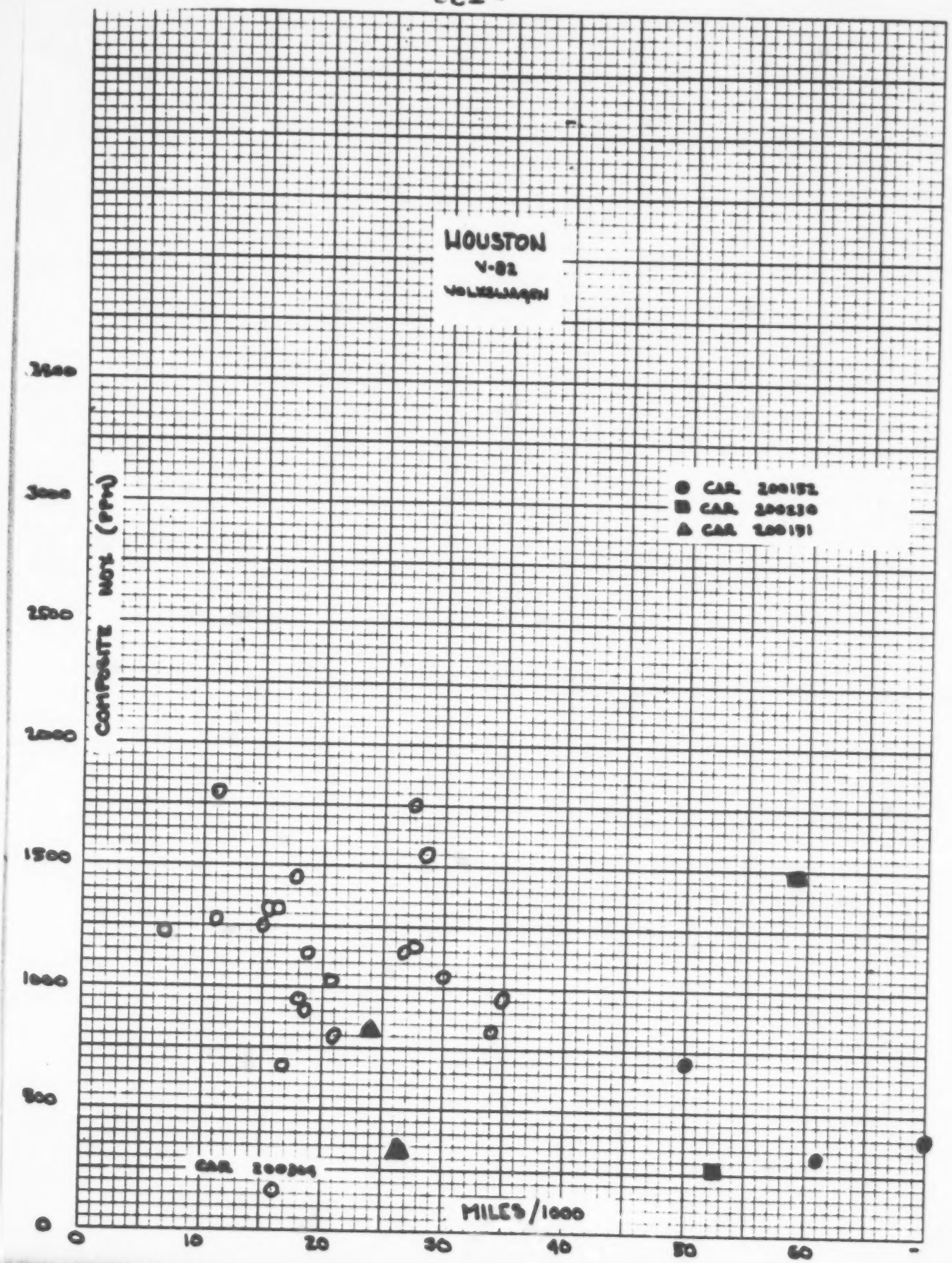

1125
LEGEND
CAR # 100228
CAR # 100258
CAR # 100200
CAR # 100374
CAR # 100269
KANSAS CITY
V82
COMPOSITE HC (PPM)
MILES / 1000
1000
900
800
700
600
500
400
300
200
100
10
20
30
40
50
60
70


KANSAS CITY
V-82
VOLKSWAGEN
CAR 100258
CAR 100139
COMPOSITE CO (PER CENT)
6.0
5.0
4.0
3.0
2.0
1.0
0
0
10
20
30
40
50
60
MILES/1000


KANSAS CITY
V-82
VOLKSWAGEN
BLACK DOTS
CAR. 100570
COMPOSITE NOX (PPM)
3500
3000
2500
2000
1500
1000
500
0
MILES / 1000
0
10
20
30
40
50
60
70


HOUSTON
V82
CAR # 397
CAR # 240
CAR # 152
CAR #152
1115
2457
COMPOSITE HC (PPM)
MILES / 1000
0
100
200
300
400
500
600
700
800
900
1000
10
20
30
40
50
60


HOUSTON
V-82
VOLKSWAGEN
CAR 100151
CAR 100304
COMPOSITE CO (PERCENT)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
.0
MILES / 1000
70


HOUSTON
V-82
● CAR. 200152
■ CAR. 200230
▲ CAR. 200191
CAR. 200204
COMPOSITE NOX (PPM)
MILES/1000
0
500
1000
1500
2000
2500
3000
10
20
30
40
50
60

G-2

WEIGHTED MILEAGE REGRESSION TABLES

LEGEND AND INTERPRETATION

OF WEIGHTED MILEAGE REGRESSION TABLES

Key Words	Description
CLASS	Code for each displacement class. See accompanying table for a description of displacement classes.
WF	Weighting factor.
INTERCEPT	The intercept of the weighted mileage regression equation.
SLOPE	The slope of the weighted mileage regression equation (Note that the slope is per 1,000,000 miles).

TABLE OF DISPLACEMENT CLASS CODES

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL
1	A01	American Motors	232	A & M	6	1
2	C11	Dodge, Plym	225	A & M	6	1
3	C12	Dodge, Plym	318	A & M	8	2
4	C13	Chry, Plym	383	A Only	8	2
5	C14	Dodge, Chry, Plym	440	A Only	8	4
6	F31	Ford	200	A & M	6	1
7	F32	Ford (1970 Maverick)	200	A & M	6	1
8	F33	Ford, Merc	302	A & M	8	2
9	F34	Ford, Merc 1969 only	351	A & M	8	2
10	F35	Ford, Merc	390	A Only	8	2
11	F36	Ford, Merc	429	A Only	8	4
12	G51	Chev	230	A Only	6	1
13	G52	Chev	250	A Only	6	1
14	G53	Chev	307	A Only	8	2
15	G54	Chev 1968 Only	327	A Only	8	4
16	G55	Chev	350	A Only	8	4
17	G56	Chev	396	A Only	8	4
18	G61	Pont	350	A Only	8	2
19	G62	Pont	400	A Only	8	2
20	G63	Pont	428	A Only	8	4
21	G66	Olds	350	A Only	8	2
22	G67	Olds	455	A Only	8	4
23	G71	Buick	350	A Only	8	4
24	G72	Buick	430	A Only	8	4
25	G76	Cadillac	472	A Only	8	4
26	V81	Volkswagen	91	A & M	4	1
27	V82	Volkswagen	97	A & M	4	FI*

* Fuel Injection

TABLE G 13

Composite HC

WEIGHTED REGRESSION FOR MAKES
COMPOSITE HC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	315.82713	1284.56686
AMER	1.54	315.82690	1284.56665
C11	3.10	179.52695	4885.63405
C12	9.03	267.32996	2339.44879
C13	5.24	343.75509	-177.83953
C14	1.31	288.31772	1923.75316
CHRY	18.68	275.66870	2026.70923
F31	1.98	222.24992	2308.73314
F32	1.98	257.55375	2088.99772
F33	5.08	432.48251	-634.05315
F34	6.60	323.63200	202.46711
F35	2.69	271.68023	438.01268
F36	2.12	240.27816	2403.61735
FORD	20.45	318.98291	640.42651
G51	0.65	305.06816	97.33490
G52	2.68	221.08319	166.16685
G53	4.07	185.63481	8158.16227
G54	5.65	391.43859	1416.06418
G55	8.06	293.51618	914.30235
G56	1.66	209.91617	8579.51054
CHEV	22.77	284.24048	2781.04541
G61	3.59	296.78807	-1552.18578
G62	4.73	257.65035	-652.18808
G63	1.51	346.17540	-619.66622
PONT	9.83	285.54224	-975.87866
G66	4.11	246.71961	1527.94744
G67	3.87	156.01247	2904.40082
OLDS	7.98	202.73004	2195.47510
G71	4.75	179.86385	2882.69586
G72	3.71	238.80191	496.07923
BUIC	8.46	205.71022	1836.08252
G76	2.83	120.57058	2191.15368

CADI	2.83	120.57053	2191.15356
V81	5.60	125.98884	16463.90900
V82	1.86	68.82415	11198.97610
VOLK	7.46	111.73593	15151.19922

WEIGHTED REGRESSION FOR GENERAL MOTORS
COMPOSITE HC

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	305.06816	97.33490
G52	2.68	221.08319	166.16685
G53	4.07	185.63481	8158.16227
G54	5.65	391.43859	1416.06418
G55	8.06	293.51618	914.30235
G56	1.66	209.91617	8579.51054
G61	3.59	296.78807	-1552.18578
G62	4.73	257.65035	-652.18808
G63	1.51	346.17540	-619.66622
G66	4.11	246.71961	1527.94744
G67	3.87	156.01247	2904.40082
G71	4.75	179.86385	2882.69586
G72	3.71	238.80191	496.07923
G76	2.83	120.57058	2191.15368
G.M.	51.87	250.2C9C6	1792.66577

WEIGHTED REGRESSION FOR TOTAL COMPOSITE HC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	315.82713	1284.56686
C11	3.10	179.52695	4885.63405
C12	9.03	267.32996	2339.44879
C13	5.24	343.75509	-177.83953
C14	1.31	288.31772	1923.75316
F31	1.98	222.24992	2308.73314
F32	1.98	257.55375	2088.99772
F33	5.08	432.48251	-634.05315
F34	6.60	323.63200	202.46711
F35	2.69	271.68023	438.01268
F36	2.12	240.27816	2403.61735
G51	0.65	305.06816	97.33490
G52	2.68	221.08319	166.16685
G53	4.07	185.63481	8158.16227
G54	5.65	391.43859	1416.06418
G55	8.06	293.51618	914.30235
G56	1.66	209.91617	8579.51054
G61	3.59	296.78807	-1552.18578
G62	4.73	257.65035	-652.18808
G63	1.51	346.17540	-619.66622
G66	4.11	246.71961	1527.94744
G67	3.87	156.01247	2904.40082
G71	4.75	179.86385	2882.69586
G72	3.71	238.80191	496.07923
G76	2.83	120.57058	2191.15368
V81	5.60	125.98884	16463.90900
V82	1.86	68.82415	11198.97610
TOTAL	100.00	259.70947	2589.47388

TABLE G-14

Composite CO

WEIGHTED REGRESSION FOR MAKES
COMPOSITE CO

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	1.55096	10.50235
AMER	1.54	1.55096	10.50234
C11	3.10	1.39354	20.83153
C12	9.03	1.68116	7.49224
C13	5.24	2.05023	0.44025
C14	1.31	2.24393	13.96030
CHRY	18.68	1.77642	8.18135
F31	1.98	1.63361	-3.36928
F32	1.98	0.93848	41.84240
F33	5.08	1.31377	1.87800
F34	6.60	1.06434	19.00149
F35	2.69	1.48112	2.81264
F36	2.12	1.42257	37.93094
FORD	20.45	1.26119	14.62623
G51	0.65	1.38366	16.56404
G52	2.68	1.64602	-7.08593
G53	4.07	1.59001	10.13778
G54	5.65	3.12662	3.74137
G55	8.06	2.02937	3.85906
G56	1.66	1.98154	13.44486
CHEV	22.77	2.15606	4.72545
G61	3.59	1.51711	3.86807
G62	4.73	1.59174	0.71479
G63	1.51	1.66194	26.87990
PONT	9.83	1.57527	5.88565
G66	4.11	2.17560	2.46077
G67	3.87	0.94381	38.96814
OLDS	7.98	1.57823	20.16547
G71	4.75	2.17603	19.79914
G72	3.71	2.04368	2.43229
BUIC	8.46	2.11799	12.18318
G76	2.83	0.88991	17.96502

CADI	2.83	0.88991	17.96501
V81	5.60	1.58009	29.45572
V82	1.86	1.01535	17.30575
VOLK	7.46	1.43928	26.42636

WEIGHTED REGRESSION FOR GENERAL MOTORS
COMPOSITE CO

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	1.38366	16.56404
G52	2.68	1.64602	-7.08593
G53	4.07	1.59001	10.13778
G54	5.65	3.12662	3.74137
G55	8.06	2.02937	3.85906
G56	1.66	1.98154	13.44486
G61	3.59	1.51711	3.86807
G62	4.73	1.59174	0.71479
G63	1.51	1.66194	26.87990
G66	4.11	2.17560	2.46077
G67	3.87	0.94381	38.96814
G71	4.75	2.17603	19.79914
G72	3.71	2.04368	2.43229
G76	2.83	0.88991	17.96502
G.M.	51.87	1.88181	9.25942

WEIGHTED REGRESSION FOR TOTAL
COMPOSITE CO

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	1.55096	10.50235
C11	3.10	1.39354	20.83153
C12	9.03	1.68116	7.49224
C13	5.24	2.05023	0.44025
C14	1.31	2.24393	13.96030
F31	1.98	1.63361	-3.36928
F32	1.98	0.93848	41.84240
F33	5.08	1.31377	1.87800
F34	6.60	1.06434	19.00149
F35	2.69	1.48112	2.81264
F36	2.12	1.42257	37.93094
G51	0.65	1.38366	16.56404
G52	2.68	1.64602	-7.08593
G53	4.07	1.59001	10.13778
G54	5.65	3.12662	3.74137
G55	8.06	2.02937	3.85906
G56	1.66	1.98154	13.44486
G61	3.59	1.51711	3.86807
G62	4.73	1.59174	0.71479
G63	1.51	1.66194	26.87990
G66	4.11	2.17560	2.46077
G67	3.87	0.94381	38.96814
G71	4.75	2.17603	19.79914
G72	3.71	2.04368	2.43229
G76	2.83	0.88991	17.96502
V81	5.60	1.58009	29.45572
V82	1.86	1.01535	17.30575
TOTAL	100.00	1.69710	11.45534

TABLE G-15

Composite NO

WEIGHTED REGRESSION FOR MAKES
COMPOSITE NO

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	2035.18702	-18444.11210
AMER	1.54	2035.18701	-18444.10938
C11	3.10	2060.54599	-10627.13110
C12	9.03	1784.67745	-8731.55409
C13	5.24	1535.48296	-1288.91525
C14	1.31	1341.09445	-9331.07287
CHRY	18.68	1729.44873	-7000.40625
F31	1.98	1885.51610	337.57148
F32	1.98	2106.94159	-25874.98730
F33	5.08	2193.96690	-13956.13970
F34	6.60	1740.04389	-7631.22703
F35	2.69	1710.80023	-6732.37210
F36	2.12	1410.40048	-14704.03800
FORD	20.45	1864.39282	-10812.22656
G51	0.65	1384.77649	-6158.88610
G52	2.68	1405.83483	-6144.76084
G53	4.07	1676.64833	-5838.19749
G54	5.65	1119.42214	-6558.66765
G55	8.06	1628.31945	-2381.75202
G56	1.66	1337.38082	-12287.64790
CHEV	22.77	1456.33594	-5308.89453
G61	3.59	1778.50363	-10425.30930
G62	4.73	1624.04893	-9579.07159
G63	1.51	1553.81940	-10337.74820
PONT	9.83	1669.66846	-10004.65234
G66	4.11	1251.86858	-6379.49018
G67	3.87	1702.17068	-16819.73320
OLDS	7.98	1470.24780	-11442.61328
G71	4.75	1412.94908	-9719.48652
G72	3.71	1289.91873	1120.32494
BUIC	8.46	1358.99585	-4965.85547
G76	2.83	1590.31105	-6422.25633

CADI	2.83	1590.31030	-6422.25391
V81	5.60	1772.74787	-14245.81710
V82	1.86	1567.15694	-12019.16730
VOLK	7.46	1721.48755	-13690.64063

WEIGHTED REGRESSION FOR GENERAL MOTORS
COMPOSITE NO

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	1384.77649	-6158.88610
G52	2.68	1405.83483	-6144.76084
G53	4.07	1676.64833	-5838.19749
G54	5.65	1119.42214	-6558.66765
G55	8.06	1628.31945	-2381.75202
G56	1.66	1337.38082	-12287.64790
G61	3.59	1778.50363	-10425.30930
G62	4.73	1624.04893	-9579.07159
G63	1.51	1553.81940	-10337.74820
G66	4.11	1251.86858	-6379.49016
G67	3.87	1702.17068	-16819.73320
G71	4.75	1412.94908	-9719.48652
G72	3.71	1289.91873	1120.32494
G76	2.83	1590.31105	-6422.25633
G.M.	51.87	1490.33862	-7147.24609

WEIGHTED REGRESSION FOR TOTAL
COMPOSITE NO

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	2035.18702	-18444.11210
C11	3.10	2060.54599	-10627.13110
C12	9.03	1784.67745	-8731.55409
C13	5.24	1535.48296	-1288.91525
C14	1.31	1341.09445	-9331.07287
F31	1.98	1885.51610	337.57148
F32	1.98	2106.94159	-25874.98730
F33	5.08	2193.96690	-13956.13970
F34	6.60	1740.04389	-7631.22703
F35	2.69	1710.80023	-6732.37210
F36	2.12	1410.40048	-14704.03800
G51	0.65	1384.77649	-6158.88610
G52	2.68	1405.83483	-6144.76084
G53	4.07	1676.64833	-5838.19749
G54	5.65	1119.42214	-6558.66765
G55	8.06	1628.31945	-2381.75202
G56	1.66	1337.38082	-12287.64790
G61	3.59	1778.50363	-10425.30930
G62	4.73	1624.04893	-9579.07159
G63	1.51	1553.81940	-10337.74820
G66	4.11	1251.86858	-6379.49016
G67	3.87	1702.17068	-16819.73320
G71	4.75	1412.94908	-9719.48652
G72	3.71	1289.91873	1120.32494
G76	2.83	1590.31105	-6422.25633
V81	5.60	1772.74787	-14245.81710
V82	1.86	1567.15694	-12019.16730
TOTAL	100.00	1637.12964	-8531.41797

TABLE G-16

Composite NOC

WEIGHTED REGRESSION FOR MAKES
COMPOSITE NOC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	1875.04161	-13320.45120
AMER	1.54	1875.04150	-13320.44922
C11	3.10	1937.24854	-8071.80117
C12	9.03	1684.64472	-6586.31363
C13	5.24	1394.50760	1459.53581
C14	1.31	1250.17360	-6719.59878
CHRY	18.68	1614.70898	-4585.20313
F31	1.98	1808.25847	2177.28603
F32	1.98	1938.20176	-20112.72910
F33	5.08	2070.85666	-10511.86210
F34	6.60	1618.84492	-3978.32284
F35	2.69	1605.11159	-4814.36440
F36	2.12	1338.62233	-12512.21560
FORD	20.45	1749.53394	-7562.14844
G51	0.65	1248.85299	-2703.23360
G52	2.68	1360.02765	-5386.45288
G53	4.07	1547.52462	-2674.00126
G54	5.65	1011.19076	-4339.77385
G55	8.06	1537.79965	296.89448
G56	1.66	1265.85538	-9952.30597
CHEV	22.77	1359.87207	-2886.41064
G61	3.59	1667.64467	-7869.29390
G62	4.73	1513.33876	-7307.17367
G63	1.51	1437.56067	-6872.81882
PONT	9.83	1558.05200	-7445.73828
G66	4.11	1139.27864	-2858.22042
G67	3.87	1576.18382	-13259.73190
OLDS	7.98	1351.16064	-7902.56250
G71	4.75	1320.65570	-7349.82401
G72	3.71	1292.54143	-337.87718
BUIC	8.46	1303.94092	-4274.84375
G76	2.83	1570.84511	-6314.39580

CADI	2.83	1570.84375	-6314.39453
V81	5.60	1634.31103	-10352.56610
V82	1.86	1503.66294	-11771.27900
VOLK	7.46	1601.73633	-10706.29297

WEIGHTED REGRESSION FOR GENERAL MOTORS
COMPOSITE NOC

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	1248.85299	-2703.23360
G52	2.68	1360.02765	-5386.45288
G53	4.07	1547.52462	-2674.00126
G54	5.65	1011.19076	-4339.77385
G55	8.06	1537.79965	296.89448
G56	1.66	1265.85538	-9952.30597
G61	3.59	1667.64467	-7869.29390
G62	4.73	1513.33876	-7307.17367
G63	1.51	1437.56067	-6872.81882
G66	4.11	1139.27864	-2858.22042
G67	3.87	1576.18382	-13259.73190
G71	4.75	1320.65570	-7349.82401
G72	3.71	1282.54143	-337.87718
G76	2.83	1570.84511	-6314.39580
G.M.	51.87	1398.47778	-4935.65625

WEIGHTED REGRESSION FOR TOTAL
COMPOSITE NOC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	1875.04161	-13320.45120
C11	3.10	1937.24854	-8071.80117
C12	9.03	1684.64472	-6586.31363
C13	5.24	1394.50760	1459.53581
C14	1.31	1250.17360	-6719.59878
F31	1.98	1808.25847	2177.28603
F32	1.98	1938.20176	-20112.72910
F33	5.08	2070.85666	-10511.86210
F34	6.60	1618.84492	-3978.32284
F35	2.69	1605.11159	-4814.36440
F36	2.12	1338.62233	-12512.21560
G51	0.65	1248.85299	-2703.23360
G52	2.68	1360.02765	-5386.45288
G53	4.07	1547.52462	-2674.00126
G54	5.65	1011.19076	-4339.77385
G55	8.06	1537.79965	296.89448
G56	1.66	1265.85538	-9952.30597
G61	3.59	1667.64467	-7869.29390
G62	4.73	1513.33876	-7307.17367
G63	1.51	1437.56067	-6872.81882
G66	4.11	1139.27864	-2858.22042
G67	3.87	1576.18382	-13259.73190
G71	4.75	1320.65570	-7349.82401
G72	3.71	1282.54143	-337.87718
G76	2.83	1570.84511	-6314.39580
V81	5.60	1634.31103	-10352.56610
V82	1.86	1503.66294	-11771.27900
TOTAL	100.00	1533.15967	-5966.92578

TABLE G-17

Mass HC

WEIGHTED REGRESSION FOR MAKES
MASS MC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	3.42015	3.31422
AMER	1.54	3.42015	3.31422
C11	3.10	1.88449	46.72123
C12	9.03	3.38022	25.00986
C13	5.24	4.51566	-0.96286
C14	1.31	4.00295	22.21442
CHRY	18.68	3.49418	21.13116
F31	1.98	2.27121	28.02820
F32	1.98	2.55012	17.21682
F33	5.08	5.19343	-2.71186
F34	6.60	3.86928	5.39116
F35	2.69	3.66415	3.54304
F36	2.12	3.39691	35.35217
FORD	20.45	3.83981	9.57790
G51	0.65	3.59478	-1.56659
G52	2.68	2.62649	1.39295
G53	4.07	2.05951	106.30601
G54	5.65	5.12719	13.58786
G55	8.06	3.71461	12.26862
G56	1.66	2.73382	109.90195
CHEV	22.77	3.56629	34.84735
G61	3.59	3.73947	-21.11498
G62	4.73	3.53192	-11.71147
G63	1.51	4.65696	-6.99129
PONT	9.83	3.78054	-14.42064
G66	4.11	3.09711	21.31541
G67	3.87	2.13014	39.47474
OLDS	7.98	2.62817	30.12199
G71	4.75	2.41031	38.31703
G72	3.71	3.25594	6.73665
BUIC	8.46	2.78115	24.46794
G76	2.83	1.73566	31.42975

CADI	2.83	1.73566	31.42973
V81	5.60	0.86246	105.17958
V82	1.86	0.62216	87.40704
VOLK	7.46	0.80254	100.74834

WEIGHTED REGRESSION FOR GENERAL MOTORS
MASS HC

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	3.59478	-1.56659
G52	2.68	2.62649	1.39295
G53	4.07	2.05951	106.30601
G54	5.65	5.12719	13.58786
G55	8.06	3.71461	12.26862
G56	1.66	2.73382	109.90195
G61	3.59	3.73947	-21.11498
G62	4.73	3.53192	-11.71147
G63	1.51	4.65696	-6.99129
G66	4.11	3.09711	21.31541
G67	3.87	2.13014	39.47474
G71	4.75	2.41031	38.31703
G72	3.71	3.25594	6.73665
G76	2.83	1.73566	31.42975
G.M.	51.87	3.23463	22.90414

WEIGHTED REGRESSION FOR TOTAL MASS HC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	3.42015	3.31422
C11	3.10	1.88449	46.72123
C12	9.03	3.38022	25.00986
C13	5.24	4.51566	-0.96286
C14	1.31	4.00295	22.21442
F31	1.98	2.27121	28.02820
F32	1.98	2.55012	17.21682
F33	5.08	5.19343	-2.71186
F34	6.60	3.86928	5.39116
F35	2.69	3.66415	3.54304
F36	2.12	3.39691	35.35217
G51	0.65	3.59478	-1.56659
G52	2.68	2.62649	1.39295
G53	4.07	2.05951	106.30601
G54	5.65	5.12719	13.58786
G55	8.06	3.71461	12.26862
G56	1.66	2.73382	109.90195
G61	3.59	3.73947	-21.11498
G62	4.73	3.53192	-11.71147
G63	1.51	4.65696	-6.99129
G66	4.11	3.09711	21.31541
G67	3.87	2.13014	39.47474
G71	4.75	2.41031	38.31703
G72	3.71	3.25594	6.73665
G76	2.83	1.73566	31.42975
V81	5.60	0.86246	105.17958
V82	1.86	0.62216	87.40704
TOTAL	100.00	3.22829	25.35324

TABLE G-18

Mass CO

WEIGHTED REGRESSION FOR MAKES
MASS CO

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	31.40330	114.32872
AMER	1.54	31.40329	114.32870
C11	3.10	27.30036	369.15465
C12	9.03	39.64254	142.27337
C13	5.24	50.08582	37.86433
C14	1.31	57.95741	308.81767
CHRY	18.68	41.80257	162.31633
F31	1.98	32.46032	-48.61438
F32	1.98	17.47445	718.74600
F33	5.08	29.28661	76.94890
F34	6.60	23.78293	462.31581
F35	2.69	38.24267	25.41431
F36	2.12	37.84126	1027.07107
FORD	20.45	28.73889	343.02197
G51	0.65	30.64933	333.83545
G52	2.68	36.98882	-167.48239
G53	4.07	34.40425	284.30117
G54	5.65	76.12206	51.11842
G55	8.06	48.22950	96.56696
G56	1.66	48.22989	341.44046
CHEV	22.77	50.85460	112.39297
G61	3.59	36.15991	61.70449
G62	4.73	41.04483	-19.89037
G63	1.51	41.85680	702.47642
PONT	9.83	39.38553	120.87254
G66	4.11	51.50371	81.32910
G67	3.87	24.24509	996.61871
OLDS	7.98	38.28427	525.20996
G71	4.75	54.92178	479.78039
G72	3.71	52.38810	62.54502
BUIC	8.46	53.81064	296.80835
G76	2.83	24.11067	484.30520

CADI	2.83	24.11066	484.30493
V81	5.60	19.79158	344.08865
V82	1.86	15.48016	250.84796
VOLK	7.46	18.71660	320.84082

WEIGHTED REGRESSION FOR GENERAL MOTORS
MASS CO

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	30.64933	333.83545
G52	2.68	36.98882	-167.48239
G53	4.07	34.40425	284.30117
G54	5.65	76.12206	51.11842
G55	8.06	48.22950	96.56696
G56	1.66	48.22989	341.44046
G61	3.59	36.15991	61.70449
G62	4.73	41.04483	-19.89037
G63	1.51	41.85680	702.47642
G66	4.11	51.50371	81.32910
G67	3.87	24.24509	996.61871
G71	4.75	54.92178	479.78039
G72	3.71	52.38810	62.54502
G76	2.83	24.11067	484.30520
G.M.	51.87	45.77020	227.87984

WEIGHTED REGRESSION FOR TOTAL
MASS CO

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	31.40330	114.32872
C11	3.10	27.30036	369.15465
C12	9.03	39.64254	142.27337
C13	5.24	50.06582	37.86433
C14	1.31	57.95741	308.81767
F31	1.98	32.46032	-48.61438
F32	1.98	17.47445	718.74600
F33	5.08	29.28661	76.94890
F34	6.60	23.78293	462.31581
F35	2.69	38.24267	25.41431
F36	2.12	37.84126	1027.07107
G51	0.65	30.64933	333.83545
G52	2.68	36.98882	-167.48239
G53	4.07	34.40425	284.30117
G54	5.65	76.12206	51.11842
G55	8.06	48.22950	96.56696
G56	1.66	48.22989	341.44046
G61	3.59	36.15991	61.70449
G62	4.73	41.04483	-19.89037
G63	1.51	41.85680	702.47642
G66	4.11	51.50371	81.32910
G67	3.87	24.24509	996.61871
G71	4.75	54.92178	479.78039
G72	3.71	52.38810	62.54502
G76	2.83	24.11067	484.30520
V81	5.60	19.79158	344.08865
V82	1.86	15.48016	250.84796
TOTAL	100.00	39.30672	244.36536

TABLE G-19

Mass NO_x

WEIGHTED REGRESSION FOR MAKES
MASS NOX

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	6.82480	-73.57245
AMER	1.54	6.82479	-73.57243
C11	3.10	6.50071	-33.15157
C12	9.03	6.85882	-36.10119
C13	5.24	6.18027	-3.37348
C14	1.31	5.69021	-41.05422
CHRY	18.68	6.52710	-26.77846
F31	1.98	6.07948	5.03240
F32	1.98	6.43353	-79.87470
F33	5.08	7.97111	-43.90726
F34	6.60	6.59301	-29.82965
F35	2.69	7.07169	-31.10139
F36	2.12	6.11579	-62.43833
FORD	20.45	6.88368	-38.34447
G51	C.65	4.95768	-23.47212
G52	2.68	5.13002	-22.87766
G53	4.07	6.06791	-15.15851
G54	5.65	4.41548	-26.09603
G55	8.06	6.34177	-8.30803
G56	1.66	5.26999	-46.98759
CHEV	22.77	5.55458	-18.91386
G61	3.59	6.88364	-43.31557
G62	4.73	6.81943	-43.95919
G63	1.51	6.45195	-41.75368
PONT	9.83	6.78643	-43.38530
G66	4.11	4.84876	-22.77543
G67	3.87	7.12329	-70.40867
OLDS	7.98	5.95182	-45.87573
G71	4.75	5.85308	-41.55682
G72	3.71	5.39810	4.66758
BUIC	8.46	5.65356	-21.28583
G76	2.83	7.02548	-28.39351

CADI	2.83	7.02548	-28.39349
V81	5.60	3.60767	-30.25588
V82	1.86	3.99906	-32.91622
VOLK	7.46	3.70526	-30.91917

WEIGHTED REGRESSION FOR GENERAL MOTORS
MASS NOX

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	4.95768	-23.47212
G52	2.68	5.13002	-22.87766
G53	4.07	6.06791	-15.15851
G54	5.65	4.41548	-26.09603
G55	8.06	6.34177	-8.30803
G56	1.66	5.26999	-46.98759
G61	3.59	6.88364	-43.31557
G62	4.73	6.81943	-43.95919
G63	1.51	6.45195	-41.75368
G66	4.11	4.84876	-22.77543
G67	3.87	7.12329	-70.40867
G71	4.75	5.85308	-41.55682
G72	3.71	5.39810	4.66758
G76	2.83	7.02548	-28.39351
G.M.	51.87	5.94554	-28.60358

WEIGHTED REGRESSION FOR TOTAL
MASS NOX

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	6.82480	-73.57245
C11	3.10	6.50071	-33.15157
C12	9.03	6.85882	-36.10119
C13	5.24	6.18027	-3.37348
C14	1.31	5.69021	-41.05422
F31	1.98	6.07948	5.03240
F32	1.98	6.43353	-79.87470
F33	5.08	7.97111	-43.90726
F34	6.60	6.59301	-29.82965
F35	2.69	7.07169	-31.10139
F36	2.12	6.11579	-62.43833
G51	0.65	4.95768	-23.47212
G52	2.68	5.13002	-22.87766
G53	4.07	6.06791	-15.15851
G54	5.65	4.41548	-26.09603
G55	8.06	6.34177	-8.30803
G56	1.66	5.26999	-46.98759
G61	3.59	6.88364	-43.31557
G62	4.73	6.81943	-43.95919
G63	1.51	6.45195	-41.75368
G66	4.11	4.84876	-22.77543
G67	3.87	7.12329	-70.40867
G71	4.75	5.85308	-41.55682
G72	3.71	5.39810	4.66758
G76	2.83	7.02548	-28.39351
V81	5.60	3.60767	-30.25588
V82	1.86	3.99906	-32.91622
TOTAL	100.00	6.09243	-31.11993

TABLE G-20

Mass NOxC

WEIGHTED REGRESSION FOR MAKES
MASS NOXC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	6.30939	-57.36923
AMER	1.54	6.30939	-57.36922
C11	3.10	6.10339	-24.91837
C12	9.03	6.46667	-27.58069
C13	5.24	5.58111	8.19908
C14	1.31	5.30780	-30.08005
CHRY	18.68	6.07670	-17.27740
F31	1.98	5.82339	10.98507
F32	1.98	5.91885	-62.56949
F33	5.08	7.51257	-31.13905
F34	6.60	6.11772	-15.07093
F35	2.69	6.62777	-23.08683
F36	2.12	5.80021	-52.93186
FORD	20.45	6.45064	-26.11787
G51	0.65	4.46303	-11.01190
G52	2.68	4.95083	-20.13437
G53	4.07	5.57178	-3.18330
G54	5.65	3.97525	-17.33719
G55	8.06	5.97908	2.27837
G56	1.66	4.97150	-37.61887
CHEV	22.77	5.17131	-9.49112
G61	3.59	6.44356	-33.07018
G62	4.73	6.34420	-34.08632
G63	1.51	5.96091	-27.14514
PONT	9.83	6.32161	-32.64896
G66	4.11	4.39457	-8.89870
G67	3.87	6.58277	-55.25053
OLDS	7.98	5.45576	-31.37759
G71	4.75	5.46523	-31.86388
G72	3.71	5.35336	-1.29610
BUIC	8.46	5.41617	-18.45885
G76	2.83	6.93181	-27.79664

CADI	2.83	6.93180	-27.79663
V81	5.60	3.31676	-22.26685
V82	1.86	3.81501	-31.70314
VOLK	7.46	3.44098	-24.61960

WEIGHTED REGRESSION FOR GENERAL MOTORS
MASS NOXC

CLASS	WF	INTERCEPT	SLOPE
G51	0.65	4.46303	-11.01190
G52	2.68	4.95083	-20.13437
G53	4.07	5.57178	-3.18330
G54	5.65	3.97525	-17.33719
G55	8.06	5.97908	2.27837
G56	1.66	4.97150	-37.61887
G61	3.59	6.44356	-33.07018
G62	4.73	6.34420	-34.08632
G63	1.51	5.96091	-27.14514
G66	4.11	4.39457	-8.89870
G67	3.87	6.58277	-55.25053
G71	4.75	5.46523	-31.86388
G72	3.71	5.35336	-1.29610
G76	2.83	6.93181	-27.79664
G.M.	51.87	5.56905	-19.70834

WEIGHTED REGRESSION FOR TOTAL
MASS NOXC

CLASS	WF	INTERCEPT	SLOPE
A01	1.54	6.30939	-57.36923
C11	3.10	6.10339	-24.91837
C12	9.03	6.46667	-27.58069
C13	5.24	5.58111	8.19908
C14	1.31	5.30780	-30.08005
F31	1.98	5.82339	10.98507
F32	1.98	5.91885	-62.56949
F33	5.08	7.51257	-31.13905
F34	6.60	6.11772	-15.07093
F35	2.69	6.62777	-23.08683
F36	2.12	5.80021	-52.93186
G51	0.65	4.46303	-11.01190
G52	2.68	4.95083	-20.13437
G53	4.07	5.57178	-3.18330
G54	5.65	3.97525	-17.33719
G55	8.06	5.97908	2.27837
G56	1.66	4.97150	-37.61887
G61	3.59	6.44356	-33.07018
G62	4.73	6.34420	-34.08632
G63	1.51	5.96091	-27.14514
G66	4.11	4.39457	-8.89870
G67	3.87	6.58277	-55.25053
G71	4.75	5.46523	-31.86388
G72	3.71	5.35336	-1.29610
G76	2.83	6.93181	-27.79664
V81	5.60	3.31676	-22.26685
V82	1.86	3.81501	-31.70314
TOTAL	100.00	5.69680	-21.51135

APPENDIX H

MAINTENANCE TABLES

1. Explanation of Maintenance Data Tables.
2. Tables: H-1 Kansas City
   H-2 Houston

H EXPLANATION OF MAINTENANCE TABLES

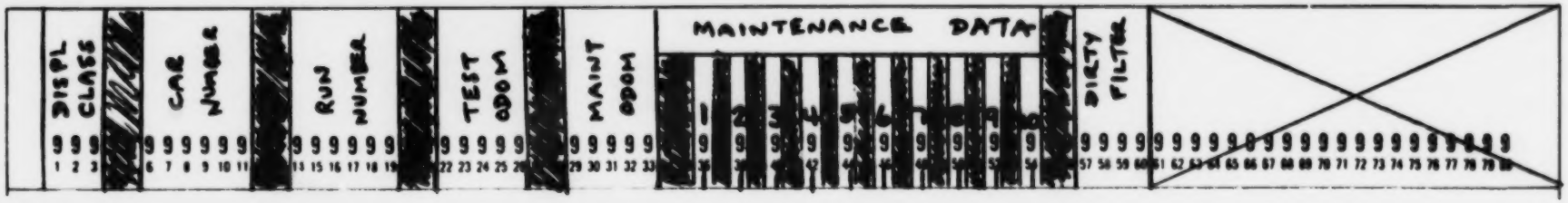
Maintenance data that was listed on Vehicle Maintenance forms at the test centers are given in the following set of tables, a direct listing of the data processing cards used in the study. The format is shown in the lead sheet. Runs are included which have either maintenance data from the owner or dirty air filter information. For example, the string of 10 codes

0 1 1 0 0 0 1 0 0 1

on the right means that the owner reported that he had work done on points (No. 2), plugs (No. 3), air filter change (No. 7) and a tune up (No. 10).

The column on the far right labeled "Dirty Filter" shows the restriction of the dirty air filter when an additional (Hot Start) test was run with a new air filter during Phases II and III. A blank or a zero indicates that no Hot Start test was run because the filter was not excessively dirty. The AC air filter tester used to measure restriction was modified to include a pointer and an angle scale, and was adjusted to read about 55 with a new filter. At first, readings of 100 or above were arbitrarily chosen to denote excessive restriction. Since too few air cleaners were found with restriction in this range, the "fail" point was gradually lowered to 80 in an attempt to find a point that would "fail" about 20% of the cleaners tested.

Application Maintenance by Olsen Lab, Inc. Date 11-30-71 Job No. OLI 017-2 Sheet No. 1 of 1



1 IGNITION TIMING
2 POINTS
3 PLUGS
4 IGNITION WIRES
5 CARBURETOR
6 PCV VALVE
7 AIR FILTER
8 FUEL FILTER
9 VALVE JOB
10 TUNE UP

V259

TABLE OF DISPLACEMENT CLASS CODES

Class No.	Mfgr. Code	Make	CID	Trans.	Cyl.	Carb. BBL
1	A01	American Motors	232	A & M	6	1
2	C11	Dodge, Plym	225	A & M	6	1
3	C12	Dodge, Plym	318	A & M	8	2
4	C13	Chry, Plym	383	A Only	8	2
5	C14	Dodge, Chry, Plym	440	A Only	8	4
6	F31	Ford	200	A & M	6	1
7	F32	Ford (1970 Maverick)	200	A & M	6	1
8	F33	Ford, Merc	302	A & M	8	2
9	F34	Ford, Merc 1969 only	351	A & M	8	2
10	F35	Ford, Merc	390	A Only	8	2
11	F36	Ford, Merc	429	A Only	8	4
12	G51	Chev	230	A Only	6	1
13	G52	Chev	250	A Only	6	1
14	G53	Chev	307	A Only	8	2
15	G54	Chev 1968 Only	327	A Only	8	4
16	G55	Chev	350	A Only	8	4
17	G56	Chev	396	A Only	8	4
18	G61	Pont	350	A Only	8	2
19	G62	Pont	400	A Only	8	2
20	G63	Pont	428	A Only	8	4
21	G66	Olds	350	A Only	8	2
22	G67	Olds	455	A Only	8	4
23	G71	Buick	350	A Only	8	4
24	G72	Buick	430	A Only	8	4
25	G76	Cadillac	472	A Only	8	4
26	V81	Volkswagen	91	A & M	4	1
27	V82	Volkswagen	97	A & M	4	FI*

* Fuel Injection

TABLE H-1

Kansas City

A01	100126	100151	10504	09000	1	1	1	0	1	0	1	0	0	1	
A01	100106	200640	21113		0	0	0	0	0	0	0	0	0	0	
A01	100150	100206	04900		0	0	0	0	0	0	0	0	0	0	
A01	100150	201765	12456		0	0	0	0	0	0	0	0	0	0	
A01	100195	100263	15711	14000	1	1	1	0	1	0	0	0	0	1	
A01	100210	100289	21078												0000
A01	100244	100331	20287	18000	1	0	0	0	1	0	1	0	0	1	0000
A01	100250	100339	10267		0	0	0	0	0	0	0	0	0	0	
A01	100250	201723	22227												0000
A01	100252	100341	20260	30000	1	1	1	0	0	0	0	0	0	1	
A01	100252	200867	47764		0	0	0	0	0	0	0	0	0	0	0000
A01	100401	100543	07751												0000
A01	100403	100546	13616	00000	1	1	1	0	1	0	1	0	0	0	0000
A01	100403	201743	20407		0	0	0	0	0	0	0	0	0	0	
A01	100406	100551	20948												0000
A01	100406	200805	21388												0145
A01	100412	100560	22946	25000	1	1	1	0	1	0	1	1	0	1	
A01	100412	200647	36287		0	0	0	0	0	0	0	0	0	0	
A01	100440	100625	08148		0	0	0	0	0	0	0	0	0	0	
C11	100160	100233	36431												0000
C11	100202	100276	18695	17400	0	1	1	0	1	0	1	0	0	1	
C11	100224	201194	18300												0110
C11	100248	201366	18391												0180
C11	100263	100354	40970												0000
C11	100265	100358	10161		0	0	0	0	0	0	0	0	0	0	0000
C11	100268	100364	15930	11000	1	1	1	0	0	0	0	0	0	0	0000
C11	100274	201171	21142												0105
C11	100284	100387	24275												0000
C11	100285	201205	10384												0180
C11	100325	100441	03207												0000
C11	100325	200778	07021												0000
C11	100325	201441	10325												0110
C11	100359	100484	06158	05500	0	0	0	0	1	0	0	0	0	0	0000
C12	100012	100121	25587												0000
C12	100012	210016	20161		0	0	0	0	0	0	0	0	0	0	
C12	100036	100057	21999												0000
C12	100061	100091	28880	20000	0	0	0	0	1	1	0	0	0	0	0000
C12	100073	100100	44979		0	0	0	0	0	0	0	0	0	0	
C12	100125	100150	23893	23300	0	0	0	0	0	0	1	0	0	0	
C12	100129	100171	07968		0	0	0	0	0	0	0	0	0	0	0000
C12	100132	100175	47246	46000	1	1	1	0	1	0	0	0	0	0	0000
C12	100132	100187	14263		0	0	0	0	0	0	0	0	0	0	
C12	100132	200646	29627		0	0	0	0	0	1	0	0	0	0	
C12	100163	100226	24045	23000	1	1	1	0	1	0	1	0	0	1	
C12	100180	100246	10744		0	0	0	0	0	0	0	0	0	0	
C12	100186	100252	03909		0	0	0	0	0	0	0	0	0	0	
C12	100186	200863	10173	09110	1	1	1	0	1	0	1	0	0	0	
C12	100188	100254	41667	40000	1	1	1	0	0	1	1	0	0	1	
C12	100188	200859	61272	60000	1	1	1	0	0	1	1	0	0	0	0085
C12	100520	101138	14854		0	0	0	0	0	0	0	0	0	0	
C12	100520	201475	10667		1	1	1	0	0	1	0	1	0	0	
C12	100520	201788	33053		0	1	1	0	1	0	0	0	0	0	
C13	100047	100274	05361												0000
C13	100056	100084	04803		0	0	0	0	0	0	0	0	0	0	

C13	100085	200818	16526											0125
C13	100090	100131	22903											0000
C13	100099	301001	42446											0180
C13	100138	100194	11267	11000	1	1	1	0	1	1	1	1	0	0
C13	100174	100239	21900											0000
C13	100232	100317	39400	38000	1	1	1	1	1	0	1	0	0	1
C13	100289	100303	32686	30000	0	1	1	0	0	1	1	0	0	1
C13	100521	101139	22852		1	1	1	0	0	1	1	0	0	1
C14	100101	100145	18383	17000	1	1	1	1	1	1	1	1	0	1
C14	100101	200800	31086		1	1	1	1	0	0	0	0	0	1
C14	100161	100224	04141	03000	1	0	0	1	1	0	0	0	0	0
C14	100197	100268	12807		0	0	0	0	0	0	0	0	0	0
C14	100197	200902	18783											0000
C14	100256	100345	12026	08000	1	1	1	0	0	0	1	0	0	1
C14	100260	100351	21494	20000	1	0	0	1	1	1	1	0	0	0
C14	100260	200817	24141		0	0	0	0	0	0	0	0	0	0
C14	100277	301015	44650											0070
C14	100295	100402	66560	30000	1	1	1	1	1	0	1	0	0	1
C14	100295	200650	84014		0	0	0	0	0	0	0	0	0	0
C14	100298	100406	13302	12000	1	1	1	1	1	1	1	1	0	0
C14	100321	100434	11066											0000
C14	100333	100451	31850	25000	1	1	1	1	0	1	1	0	0	1
C14	100342	200827	27500											0000
C14	100441	100606	31653											0000
C14	100441	200814	41002											0000
E31	100177	100243	13405		0	0	0	0	0	0	0	0	0	0
E31	100213	301132	45710											0100
E31	100239	100336	12140		0	0	0	0	0	0	0	0	0	0
E31	100239	200667	15078	14000	0	1	1	0	0	0	1	0	0	0
E31	100255	301500	22712											0110
E31	100322	100436	17820	08000	1	0	0	0	1	0	0	0	0	0
E31	100322	200854	24873		0	1	1	0	0	0	0	0	0	0
E31	100349	100471	18287	13000	0	0	0	0	1	0	1	0	0	0
E31	100353	100475	20548	20000	1	1	1	0	1	0	1	0	0	1
E31	100354	100477	24001	23750	1	1	1	0	1	0	0	0	0	0
E31	100364	100491	00428		0	0	0	0	0	0	0	0	0	0
E31	100364	301746	25820		0	0	0	0	0	0	0	0	0	0
E31	100381	301391	54232											0145
E31	100433	300997	03389											0180
E31	100501	201514	33291		0	0	0	0	1	0	0	0	1	0
E32	100338	100458	13302		0	0	0	0	0	0	0	0	0	0
E32	100338	200564	24155	24000	1	1	1	0	0	0	0	0	0	1
E32	100382	100516	05109		0	0	0	0	0	0	0	0	0	0
E32	100382	301730	32506		1	1	1	0	0	0	0	0	0	1
E32	100387	100522	11857											0000
E32	100388	301490	25430											0140
E32	100402	100545	12371	07000	0	1	0	0	0	0	0	0	0	0
E32	100405	100549	10833		0	0	0	0	0	0	0	0	0	0
E32	100405	201075	19306		1	1	1	0	0	1	1	0	0	1
E32	100414	100566	06482											0000
E32	100429	100590	12911											0000
E32	100431	200962	25691		1	1	1	0	1	0	1	0	0	1
E32	100444	100611	05960											0000
E32	100445	100614	05815		0	0	0	0	0	0	0	0	0	0

F32	100447	301452	20176											0130
F33	100003	100005	13436	12000	1	1	1	0	0	1	1	1	0	1	0000
F33	100017	100029	27889											0000
F33	100017	200681	36458											0000
F33	100026	100043	21710	18000	1	1	1	0	1	1	1	0	0	1	
F33	100029	100047	19597	16000	1	1	1	0	0	1	1	0	0	1	
F33	100037	100059	09021											0000
F33	100058	301292	46948											0110
F33	100065	100097	11573											0000
F33	100071	100106	30546											0000
F33	100082	100122	30001		0	0	0	0	0	0	0	0	0	0	0000
F33	100088	301494	15991											0140
F33	100116	100166	20611	19000	1	0	1	0	0	0	0	0	0	0	0000
F33	100116	200684	34053		0	1	1	0	0	1	0	0	0	0	
F33	100144	100200	34349	33000	0	1	1	1	0	0	0	0	0	1	
F33	100144	200810	45649											0000
F33	100147	301023	37084											0155
F33	100155	301092	40922											0120
F33	100204	100279	41043											0000
F33	100223	100306	13444											0000
F33	100223	200867	32576											0065
F33	100288	200732	21150	17000	1	1	1	0	0	0	0	0	0	1	
F33	100519	101129	11666		0	0	0	0	0	0	0	0	0	0	
F33	100519	301744	11666	08000	0	0	0	0	0	0	0	0	0	1	
F33	100522	201527	26680		0	0	0	0	0	0	0	0	0	0	
F34	100156	200699	44992											0000
F34	100339	301486	28712											0110
F34	100393	100531	09226											0000
F34	100394	100533	05017		0	0	0	0	0	0	0	0	0	0	
F34	100427	100586	18868											0000
F34	100430	100593	13697	07000	0	0	0	0	0	0	0	0	0	0	
F34	100438	100603	12760	11000	0	1	1	0	0	0	0	0	0	0	
F34	100442	200838	22257											0125
F34	100524	201432	31440		0	0	0	0	0	0	0	0	0	0	0180
F35	100038	100061	31748	30000	1	1	1	0	1	1	1	0	0	0	
F35	100038	200947	43504		0	0	0	0	0	0	0	0	0	0	
F35	100049	100077	10678	08000	1	1	1	0	1	1	1	0	0	0	
F35	100049	200933	17360		0	0	0	0	0	0	0	0	0	0	
F35	100066	100099	22079	19000	1	1	1	0	1	1	1	0	0	1	0000
F35	100067	100101	52949	03600	1	1	1	0	1	1	1	0	0	0	
F35	100102	100146	24215											0000
F35	100119	100170	40141	10000	1	1	1	0	1	0	1	0	0	1	
F35	100119	200921	56134		0	0	0	0	0	0	0	0	0	0	
F35	100153	100210	21794		1	1	1	0	0	0	0	1	0	1	
F35	100166	100230	15744		0	0	0	0	0	0	0	0	0	0	
F35	100166	200812	27526		0	1	1	0	0	0	0	0	0	0	
F35	100201	100274	03139		0	0	0	0	0	0	0	0	0	0	
F35	100305	301173	32471											0100
F35	100507	201573	41974											0095
F35	100510	101052	23518	22500	1	1	1	0	0	0	1	0	0	0	0000
F35	100510	201534	28516		1	1	1	0	1	1	0	0	0	0	0100
F35	100514	101069	40079		0	0	0	0	0	0	0	0	0	0	
F36	100020	100034	11025		0	0	0	0	0	0	0	0	0	0	
F36	100020	200720	24033		0	0	0	0	0	0	0	0	0	0	

E36	100348	100470	22273		0	0	0	0	0	0	0	0	0	
E36	100352	100474	30612	28000	1	1	1	0	0	0	0	0	0	
E36	100368	100495	42081	42000	1	1	1	1	0	0	0	0	0	
E36	100384	100518	06741		0	0	0	0	0	0	0	0	0	
E36	100384	301736	17270		0	0	0	0	0	0	0	0	0	
E36	100386	100521	11857		0	0	0	0	0	0	0	0	0	
E36	100386	200826	17352		0	0	0	0	0	0	0	0	0	
E36	100396	100536	18167	17400	1	1	1	0	0	1	1	1	1	0
E36	100415	301120	41269											0100
E36	100416	100568	18864		0	0	0	0	0	0	0	0	0	0000
E36	100416	301769	33417		0	0	0	0	0	0	0	0	0	
E36	100418	100571	32685	28000	1	1	1	0	0	0	0	0	0	
E36	100424	100581	29101		1	0	1	0	0	0	0	0	0	
E36	100424	200971	41166		1	1	1	0	0	0	1	0	0	1
E36	100425	100582	09728		0	0	0	0	0	0	0	0	0	
E36	100428	100588	07753	06800	0	0	0	0	0	0	1	0	0	
E36	100428	301759	21251		0	0	0	0	0	0	0	0	0	
E36	100450	100623	13290											0000
E36	100450	301142	24164											0115
E36	100528	101332	32353											0000
G51	100320	100303	25520	22000	1	1	1	0	0	1	1	0	0	0
G51	100330	100447	00898	00898	1	1	1	0	0	0	0	0	0	1
G51	100337	100456	20112											0000
G51	100337	301620	33516											0110
G51	100355	100479	15467	03000	1	1	1	0	0	0	0	0	0	1
G51	100356	100480	17330	15000	0	1	1	0	1	0	1	0	0	1
G51	100370	301530	30528											0090
G51	100376	100506	10456	08700	1	1	1	0	1	0	1	0	0	1
G51	100377	301181	30272											0000
G51	100422	100578	24042											0000
G51	100434	301009	30989											0180
G51	100436	100599	36058	34000	0	0	0	0	1	0	1	0	0	0
G51	100443	100609	14758											0000
G52	100272	100108	10140	09000	1	1	1	0	1	0	1	0	0	1
G52	100344	100465	11254											0000
G52	100385	100519	04585		0	0	0	0	0	0	0	0	0	0
G52	100385	301628	20275											0095
G52	100395	100534	00356		0	0	0	0	0	0	0	0	0	0
G52	100409	100555	31648	28000	1	1	1	0	0	1	1	1	0	1
G52	100410	100557	17387											0000
G52	100410	301612	26418											0150
G52	100413	100564	34248											0000
G52	100419	100573	23102											0000
G52	100419	301079	38164											0150
G52	100420	100575	11554											0000
G52	100421	100577	21376		0	0	0	0	0	0	0	0	0	0
G52	100421	200950	33083		0	0	0	0	0	0	0	0	0	0
G52	100455	100630	21727											0000
G53	100009	100015	22366											0000
G53	100009	301603	40357											0135
G53	100011	100019	21320	13000	1	1	1	0	1	1	0	0	0	1
G53	100011	200734	32288		0	0	0	0	0	0	0	0	0	0
G53	100014	100024	14908		0	0	0	0	0	0	0	0	0	0
G53	100014	200910	22709		0	0	0	0	0	0	0	0	0	0

G53	100024	100039	22604		0	0	0	0	0	0	0	0	0	0000
G53	100028	100045	24432	12000	0	1	1	1	1	1	1	0	0	0000
G53	100129	100184	10859		0	0	0	0	0	0	0	0	0	
G53	100159	100220	27425	24000	1	0	0	0	0	1	1	0	0	0000
G53	100179	100245	16663	16620	1	1	1	0	0	0	0	0	0	1
G53	100179	200723	24333	13000	1	1	1	0	0	0	0	0	0	1 0015
G53	100191	100257	35565	30000	1	1	1	0	0	1	1	0	0	1
G53	100191	200725	42057		1	1	1	0	0	0	1	0	0	1 0000
G53	100237	100323	15563											0000
G53	100311	301124	28199											0135
G53	100357	200721	47053											0000
G53	100357	301177	51153											0120
G53	100503	101036	30524		0	0	0	0	0	0	0	0	0	0
G54	100040	100064	20751	16000	0	0	0	0	0	0	0	0	0	1 0000
G54	100040	200979	35874		1	0	0	0	0	0	1	0	0	1 0100
G54	100041	100065	23036											0000
G54	100054	100085	21591											0000
G54	100054	200741	31080											0000
G54	100068	100102	16386											0000
G54	100093	100135	18331	14600	1	1	1	0	1	1	1	0	1	1
G54	100104	100149	25835	23000	1	1	1	0	1	0	1	0	0	0
G54	100104	200752	38213	32000	1	1	1	0	1	0	1	0	0	1 0000
G54	100141	100197	21878	12000	1	1	1	0	1	0	1	0	0	0
G54	100141	200913	32020											0000
G54	100148	200736	20762											0000
G54	100172	100237	22614	16000	1	1	1	0	1	0	1	1	0	0
G54	100183	100249	12803		0	0	0	0	0	0	0	0	0	0
G54	100192	100258	17102	16000	1	1	1	0	1	0	0	0	0	0
G54	100192	200930	28258											0000
G54	100198	100269	45915											0000
G54	100199	100275	12017	11000	1	1	1	0	0	0	0	0	0	0
G54	100211	100291	26821	19500	1	1	1	0	1	1	1	1	1	1
G54	100211	200937	34626		0	0	0	0	0	0	0	0	0	0 0000
G54	100211	301642	42563											0105
G54	100437	100601	11578											0000
G54	100517	101116	39600	36000	0	1	1	0	1	0	0	0	0	0
G55	100008	100009	17204											0000
G55	100053	100081	09131	08000	0	1	1	0	1	1	1	1	0	1
G55	100062	100093	06370											0000
G55	100062	200745	12885											0000
G55	100137	100193	21345	15000	1	1	1	0	0	1	1	0	0	0
G55	100151	100207	22475	12000	1	1	1	0	1	0	1	0	0	1 0000
G55	100216	100296	27272											0000
G55	100264	100356	21842											0000
G55	100276	100376	30052	25000	1	1	1	0	0	0	1	0	0	1
G55	100280	100380	03791		0	0	0	0	0	0	0	0	0	0 0000
G55	100280	200756	12537		0	0	0	0	0	0	0	0	0	0
G55	100280	301099	18140		0	0	0	0	0	0	0	0	0	0
G55	100282	100383	27593		0	0	0	0	0	0	0	0	0	0 0000
G55	100282	201087	45902		1	1	1	0	0	0	1	0	0	1
G55	100375	100504	11227	11000	0	0	0	0	0	0	0	0	0	0 0000
G56	100001	100001	15227	08000	1	1	1	0	1	0	1	0	0	1 0000
G56	100030	100048	23489	19000	1	1	1	1	1	1	1	1	0	1 0000
G56	100247	100335	36113	34000	1	1	1	0	0	1	1	0	0	0

G56	100296	100404	33049	28000	1	0	0	0	0	0	0	0	0	
G56	100296	200749	38380	35000	1	1	1	0	0	0	1	0	0	1
G56	100312	100422	09012	05000	1	1	1	0	0	1	0	0	0	1
G56	100324	100439	10016	05000	1	1	1	0	0	1	1	0	0	0	0000
G56	100365	100402	24923	21000	1	1	1	0	1	0	1	0	0	0	
G56	100365	200776	34106	28000	1	1	1	0	0	0	1	0	0	1	
G56	100378	100509	14062	06000	1	1	1	0	0	0	0	0	0	0	0000
G56	100391	200832	23979												0000
G56	100511	201502	30308		0	0	0	0	0	0	0	0	0	0	0000
G56	100512	101056	24444	18000	0	0	0	0	0	0	0	0	1	0	
G56	100512	201512	29709		1	1	1	0	1	0	1	0	1	0	
G61	100004	100006	19335		0	0	0	0	0	0	0	0	0	0	0000
G61	100005	100018	07382	06800	1	0	0	0	0	0	0	1	0	0	0000
G61	100005	200960	30352	23000	1	1	1	0	0	0	1	0	0	1	
G61	100084	100130	17048		0	0	0	0	0	0	0	0	0	0	
G61	100115	100164	13421	08000	1	1	1	0	1	1	1	0	0	1	0000
G61	100125	100179	12097		0	0	0	0	0	0	0	0	0	0	0000
G61	100125	200955	19321		1	1	1	0	0	0	0	0	0	1	
G61	100125	301644	23575												0125
G61	100171	100236	13015	06000	0	1	1	0	0	0	0	0	0	0	
G61	100173	100238	22063	15000	1	1	1	0	1	0	0	0	0	0	
G61	100173	200982	31407		1	1	1	0	0	0	1	0	0	1	
G61	100218	100299	19223												0000
G61	100218	301083	29639												0115
G61	100230	100315	11529	10100	0	0	0	0	0	0	0	0	0	0	
G61	100230	200716	17165		0	1	1	0	1	0	1	0	0	0	
G61	100234	100320	25863	20000	1	1	1	0	1	0	1	0	0	1	
G61	100240	100327	16942	10000	0	0	0	0	0	0	0	0	0	0	
G61	100240	301636	35277												0115
G61	100267	100362	15641												0000
G61	100267	301085	30014												0125
G61	100272	100370	22915												0000
G61	100272	301617	37515												0115
G61	100273	100372	27116												0000
G61	100279	100379	17150	15338	1	1	1	0	1	0	1	0	0	1	0000
G61	100279	301751	29184		0	0	0	0	0	0	0	0	0	0	
G61	100502	301791	46990		0	0	0	0	0	0	0	0	0	0	
G61	100506	201479	26088		0	0	0	0	0	0	1	0	0	0	
G61	100516	101081	29082	18000	1	1	1	0	0	0	0	0	0	0	0000
G62	100015	100027	29941		1	1	1	0	0	1	1	0	0	1	0000
G62	100015	200757	53026		0	1	0	0	0	0	0	0	0	0	
G62	100023	100038	18235		0	0	0	0	0	0	0	0	0	0	
G62	100023	200939	35938		0	0	0	0	0	0	0	0	0	0	
G62	100027	100044	22368		0	0	0	0	0	0	0	0	0	0	
G62	100045	100071	07174												0000
G62	100050	100078	42505	37000	0	1	1	0	1	1	0	0	0	1	0000
G62	100057	100087	71130	51000	0	1	1	0	1	0	1	0	0	1	0000
G62	100124	100178	16267	14000	1	1	1	0	1	1	1	1	0	1	
G62	100193	100259	14120												0000
G62	100194	100261	12609												0000
G62	100203	100278	11369	09000	0	0	0	0	0	0	1	0	0	0	
G62	100233	100318	24572	24000	1	1	1	0	0	1	1	0	0	1	0000
G62	100242	100329	03620		1	0	0	0	0	0	0	0	0	0	
G62	100293	100398	43465	29746	1	1	1	0	0	1	1	0	0	0	

662	100302	100411	20390											0000
662	100515	101064	28685											0000
662	100515	201328	31098		1	1	1	1	1	1	1	0	1	
662	100525	101186	46020		0	0	0	0	0	0	0	0	0	
662	100526	101190	23546		0	1	1	0	0	0	0	0	0	
663	100019	100032	17800											0000
663	100209	100288	07149	05000	1	1	1	0	1	0	1	0	0	1
663	100209	200961	17392		1	1	1	0	0	0	1	1	0	1
663	100241	100328	23477	20000	1	1	1	0	1	0	1	0	0	1
663	100249	100337	17047	10000	1	1	1	0	0	1	1	0	0	1
663	100253	100342	21935	22000	1	1	1	0	0	0	1	0	0	0
663	100290	100395	14216	12000	1	1	1	0	1	0	0	0	0	1
663	100290	200918	22406		0	0	0	0	0	0	0	0	0	0085
663	100335	100453	12452											0000
663	100392	100529	08461											0000
663	100392	301109	30250											0090
663	100449	100621	22648	21000	1	1	1	0	1	1	1	1	0	1
663	100451	100625	28930	26700	1	1	1	0	1	0	1	1	0	0
663	100451	201615	45253		0	0	0	0	0	0	0	0	0	0
666	100021	100035	18895		0	0	0	0	0	0	0	0	0	0
666	100021	200885	25593		1	1	1	0	0	0	1	0	0	0
666	100025	100041	09819		0	0	0	0	0	0	0	0	0	0
666	100064	100096	02457		0	0	0	0	0	0	0	0	0	0
666	100064	200964	18319		1	1	1	0	1	0	1	0	0	1
666	100075	100112	28271	28000	0	1	1	0	1	0	1	0	0	1
666	100095	100137	03933		0	0	0	0	0	0	0	0	0	0
666	100095	200922	12319		0	0	0	0	0	0	0	0	0	0
666	100113	301504	39639											0120
666	100123	100177	08475	08000	1	1	1	0	1	1	1	0	0	1
666	100123	301745	18162		0	1	1	0	0	0	1	0	0	1
666	100160	100222	28917	14000	1	1	1	0	1	0	0	0	0	0
666	100168	100232	08861		0	0	0	0	0	0	0	0	0	0
666	100175	301497	19722											0090
666	100184	301095	14979											0135
666	100246	100334	51103		0	0	0	0	0	0	0	0	0	0
666	100285	100389	21295	12300	0	1	1	0	0	0	0	0	0	1
666	100285	200780	25647		0	1	0	0	0	0	0	0	0	0000
666	100303	301506	22419											0120
666	100369	100496	26956											0000
666	100369	301536	42013											0120
666	100505	101037	14568	08000	1	1	1	0	0	0	1	0	0	0
666	100505	201511	18410		0	0	0	0	0	0	0	0	0	0
667	100092	100134	07832		0	0	0	0	0	0	0	0	0	0
667	100176	100242	21557	12000	1	1	1	0	0	0	1	0	0	1
667	100176	200887	33016	12000	1	1	1	0	0	1	0	0	0	1
667	100287	100391	12278	06000	1	0	0	0	0	1	0	1	0	0
667	100287	200970	23533		0	0	0	0	0	0	1	0	0	0
667	100314	100424	19823		0	1	1	0	0	0	0	0	0	0
667	100314	200893	30661		0	0	0	0	0	0	0	1	0	0
667	100320	100433	39334	34000	1	1	1	0	1	0	1	0	0	1
667	100332	100449	18020											0000
667	100366	100493	30423	18000	1	1	1	0	1	1	1	0	0	1
667	100367	100494	05635	01500	0	0	0	0	0	0	0	0	0	0
667	100371	100499	25269	18000	1	1	1	0	1	0	1	1	0	1

G67	100371	200879	33919		0	1	1	0	0	0	1	0	0	1	
G67	100373	200976	35068												0125
G67	100379	100510	15154	11000	1	1	1	0	0	0	0	0	0	0	0000
G67	100379	200878	23445		0	0	0	0	1	0	0	0	0	0	
G67	100399	100540	16865	12000	1	1	1	0	0	0	1	0	0	1	
G67	100399	200892	22223		0	0	0	0	0	0	0	0	0	0	
G67	100448	100619	17720		0	0	0	0	0	0	0	0	0	0	
G67	100456	100632	19565		0	1	1	0	0	0	0	0	0	1	
G71	100016	100028	37835		0	0	0	0	0	0	0	0	0	1	
G71	100018	200284	60833												0050
G71	100042	200951	36140												0000
G71	100070	100105	44920	18000	1	1	1	0	1	1	0	0	0	1	
G71	100070	200889	71632	71600	0	1	1	0	0	0	0	0	0	1	0000
G71	100136	100191	18508	10000	1	1	1	0	0	1	0	0	0	0	0000
G71	100154	100214	00463		0	0	0	0	0	0	0	0	0	0	
G71	100154	200773	21269	17400	0	0	0	0	0	1	1	0	0	0	
G71	100178	100244	22365		0	0	0	0	0	0	0	0	0	0	
G71	100185	100251	13120	12800	1	1	1	0	0	1	0	0	0	1	
G71	100185	200767	18190		0	1	1	0	0	0	0	0	0	1	
G71	100207	100285	37595	28560	1	1	1	0	1	0	1	0	0	1	
G71	100221	100304	13137	12600	1	1	1	0	1	0	1	0	0	1	
G71	100254	100343	13420	11900	1	1	1	0	0	0	1	0	0	0	
G71	100254	200842	17036		0	0	0	0	0	0	0	0	0	0	
G71	100300	100409	32251	22670	1	1	1	0	0	0	0	0	0	0	
G71	100529	101361	42407		0	0	0	0	0	0	1	0	0	0	0000
G72	100225	100309	07892		1	0	0	0	0	0	1	0	0	0	0000
G72	100259	100350	30465	22000	0	0	0	0	0	0	0	0	0	0	
G72	100294	100399	07297		0	0	0	0	0	0	0	0	0	0	
G72	100317	200710	26385												0000
G72	100317	301118	34390												0120
G72	100323	100438	46094	04500	0	1	0	0	0	0	0	0	0	0	
G72	100323	200841	67934		0	1	1	0	0	0	0	0	0	0	
G72	100331	100448	25361	23000	1	1	1	0	0	1	1	0	0	1	
G72	100331	200664	37003		0	0	0	0	0	0	0	0	0	0	
G72	100341	100461	92259	91200	1	1	1	0	0	0	0	0	0	1	0000
G72	100341	200897	46961		1	1	0	0	0	0	0	1	0	1	
G72	100360	100486	41981	41000	1	1	1	0	0	0	0	0	0	1	
G72	100360	200943	46610												0065
G72	100532	101670	37621												0000
G76	100157	100217	33162												0000
G76	100189	100255	05276	03848	0	0	0	0	1	0	0	0	0	0	
G76	100189	301738	36286		0	0	0	0	0	0	0	0	0	0	
G76	100227	100312	30155		0	0	0	0	0	0	0	0	0	0	
G76	100227	301784	55138		0	0	0	0	0	0	0	0	0	0	
G76	100245	100333	16412		0	0	0	0	0	0	0	0	0	0	
G76	100291	100396	39429	31000	1	1	1	0	0	1	0	0	0	0	
G76	100291	200966	47012		1	1	1	0	1	0	1	1	0	1	
G76	100351	100473	12365		0	0	0	0	0	0	1	0	0	0	
G76	100397	100539	30354		0	0	0	0	0	0	0	0	0	0	
G76	100404	100548	07705		0	0	0	0	0	0	0	0	0	0	
G76	100423	100580	29617	28000	1	1	1	0	0	0	1	0	0	1	
V81	100006	100012	07611	07611	0	0	0	0	0	0	0	0	0	0	
V81	100006	200883	20749		1	1	1	0	1	0	0	0	0	1	0000
V81	100010	100013	03973		0	0	0	0	0	0	0	0	0	0	0000

V81	100010	200673	17327	12000	1	1	1	0	1	0	0	0	0	0	
V81	100034	100054	05107	05107	1	0	0	0	1	0	0	0	0	1	
V81	100055	100023	10855	06000	0	1	1	0	1	1	1	0	0	1	
V81	100055	200993	21855	19657	0	0	0	0	0	0	0	0	0	1	
V81	100077	100115	11219	06000	1	0	0	0	1	0	0	0	0	1	
V81	100100	100143	33571	24000	1	1	1	0	1	1	1	0	0	0	0000
V81	100109	100155	20148	15000	1	1	1	0	1	1	1	0	0	1	0000
V81	100146	100202	10901		0	0	0	0	0	0	0	0	0	0	
V81	100158	100219	11496	09000	1	1	1	0	1	0	0	0	0	1	
V81	100158	200977	22296		1	1	1	0	1	0	0	0	1	1	0000
V81	100164	100227	26348												0000
V81	100182	100266	19462	15000	1	1	1	0	0	1	1	0	0	1	
V81	100182	200772	31127	24000	1	1	1	0	0	0	0	0	0	0	
V81	100500	100988	20719		0	1	1	0	1	0	0	0	0	1	0000
V81	100504	101039	10774		0	0	0	0	0	0	0	0	0	0	
V81	100504	201525	14080	12000	1	1	1	0	1	0	0	0	0	0	
V82	100139	200923	25957	12000	1	1	1	0	1	1	0	0	0	1	
V82	100196	100264	38945	36000	1	1	1	1	1	1	1	1	0	1	
V82	100196	200829	51427		0	0	0	0	0	0	0	0	0	0	
V82	100220	321217	24814												0000
V82	100225	100281	18117	12000	1	1	1	0	0	0	0	0	0	1	
V82	100225	321227	29309	24000	1	1	1	0	0	0	0	0	0	1	
V82	100228	100313	13446	08000	1	0	0	0	0	0	0	0	0	0	
V82	100228	200830	16623	12000	0	0	0	0	0	0	0	0	0	1	
V82	100258	100348	33052	30000	1	1	1	1	0	0	0	0	0	1	
V82	100258	200975	40076		0	1	1	0	0	0	0	0	0	1	
V82	100269	100366	34256												0000
V82	100270	100368	12525	11756	1	1	1	0	0	0	1	0	0	0	
V82	100270	200882	17806		1	1	1	0	0	0	0	0	0	1	
V82	100299	100407	16389												0000
V82	100310	100420	16468	11470	1	1	1	0	0	0	0	0	0	1	
V82	100374	100503	45288	30000	1	1	1	0	1	0	0	0	0	1	
V82	100374	200881	60426		1	1	1	0	0	0	0	1	1	0	

TABLE H-2

Houston

A01	200239	100301	27406	26000	1	1	1	0	0	0	0	0	0	1	
A01	200262	100328	17489		0	0	0	0	0	0	0	0	0	0	
A01	200271	100340	41583	40000	1	1	1	0	0	0	0	0	0	1	
A01	200271	201029	53229	48000	1	1	1	1	1	0	1	0	0	0	
A01	200297	100376	28643	24000	1	1	1	0	1	1	1	0	0	1	
A01	200297	200780	37913	03000	0	1	1	0	0	0	0	0	0	1	
A01	200309	100388	34745	10000	1	1	1	0	0	0	0	1	0	0	
A01	200314	100395	31997	24000	1	1	1	0	0	1	1	0	0	0	
A01	200314	200761	39672												0110
A01	200314	301841	43689												0130
A01	200332	100414	22580	20000	0	0	1	0	0	0	0	0	0	0	
A01	200332	200778	32756	24000	0	1	0	0	0	0	1	0	0	0	
A01	200337	100419	22343	22000	1	1	1	0	0	1	0	0	0	1	
A01	200337	200801	29778	25700	0	1	1	0	0	0	1	0	0	1	
A01	200347	100429	33364	25000	1	1	1	0	0	1	0	0	0	1	
A01	200347	200865	44471	42000	0	1	1	0	0	1	0	0	0	0	0085
A01	200347	301673	54316		0	0	0	0	0	0	0	0	0	0	
A01	200351	100434	08289		0	0	0	0	0	0	0	0	0	0	
A01	200351	200799	12741		0	0	0	0	0	0	0	0	0	0	
A01	200351	301746	17600	15000	0	0	0	0	0	0	1	0	0	0	
A01	200356	100440	04468		0	0	0	0	0	0	0	0	0	0	0000
A01	200356	200843	11236	07000	1	1	1	0	0	0	0	0	0	0	
A01	200358	100443	15207	12000	1	1	1	0	1	0	1	0	0	1	
A01	200358	200804	20716												0110
A01	200373	100462	21737	10000	1	1	1	0	1	0	0	0	0	1	
A01	200373	200821	30031		0	0	0	0	0	0	0	0	0	0	
A01	200383	100480	13695		0	1	0	0	0	0	0	0	0	0	0000
A01	200395	100507	27397	25000	0	1	1	0	0	0	1	0	0	1	
C11	200003	100004	08955		0	0	0	0	0	0	0	0	0	0	
C11	200056	100074	19766	18000	0	0	0	0	0	0	1	0	0	0	
C11	200056	301861	27866		0	0	0	0	0	0	0	0	0	0	
C11	200122	100159	24970	15400	1	1	1	0	0	1	1	1	0	1	
C11	200122	200613	37034	30000	0	1	1	0	0	0	1	0	0	1	
C11	200123	100160	14048	12500	0	1	1	0	0	0	1	0	0	1	
C11	200123	200205	19897		0	0	0	0	0	0	0	0	0	0	
C11	200181	200669	16143	15000	0	1	1	0	0	0	1	0	0	1	
C11	200189	100241	18784		0	1	1	0	0	0	0	0	0	0	
C11	200208	100265	25175		1	1	1	0	0	0	0	0	0	1	
C11	200215	100273	55282	26000	1	1	1	0	0	1	1	0	0	0	
C11	200215	200684	61016	55300	0	0	0	0	0	0	1	0	0	0	
C11	200234	100295	13202		0	0	0	0	0	0	0	0	0	0	
C11	200234	200692	22000		0	1	1	0	0	0	1	0	0	1	
C11	200238	100299	26207	21000	1	1	1	0	1	1	1	0	0	1	0000
C11	200238	200851	39056		0	0	0	0	0	0	0	0	0	0	
C11	200259	100325	27588	20000	1	1	1	0	0	0	1	0	0	0	
C11	200259	200786	37971	30924	0	0	0	0	0	1	1	0	0	0	
C11	200259	301649	47260		0	0	0	0	0	0	0	0	0	0	
C11	200279	100351	34786	33000	1	1	1	0	0	0	1	0	0	1	
C11	200284	100357	49865	29395	0	1	1	0	0	0	0	0	0	1	
C11	200284	200891	69628	65000	0	1	1	0	1	1	1	0	0	0	0110
C11	200284	301654	79087	70000	0	0	1	0	0	0	0	0	0	0	
C11	200295	100371	30794	30000	1	1	1	0	1	0	0	0	1	1	
C11	200310	100389	13791		0	0	0	0	0	0	0	0	0	0	
C11	200310	200897	23008	18000	0	1	1	0	0	0	0	0	0	0	0135

C11	200310	301650	28587		0	0	0	0	0	0	0	0	0	0	
C11	200317	100398	12810	10000	1	1	1	0	0	0	1	0	0	1	
C11	200317	301847	20722												0140
C11	200321	100402	15000		0	0	0	0	0	0	0	0	0	0	
C12	200013	100017	13500	12000	0	1	1	0	0	0	1	1	0	0	
C12	200013	200904	23799	18000	0	1	1	0	0	0	1	0	0	0	
C12	200015	100019	38027	29058	0	0	1	0	0	1	1	0	0	0	
C12	200015	200895	46467	40000	0	0	0	0	0	1	0	0	0	0	
C12	200015	301627	50875		0	0	0	0	0	0	0	0	0	0	
C12	200018	100022	60761	36000	1	1	1	1	1	0	1	0	0	1	
C12	200018	200579	78742												0000
C12	200022	100026	53111		0	0	0	0	0	0	0	0	0	0	
C12	200025	100030	06949		0	0	0	0	0	0	0	0	0	0	
C12	200025	200707	15137	12000	0	1	1	0	0	0	0	0	0	0	
C12	200025	301775	19426												0055
C12	200038	100047	17883	03800	1	1	1	0	1	1	1	1	0	0	
C12	200038	200775	32390	31700	0	1	1	0	0	1	1	0	0	0	
C12	200038	301688	36517	31000	0	1	1	0	0	0	1	0	0	1	
C12	200043	100054	58262		0	0	0	0	0	0	0	0	0	0	0000
C12	200055	100072	15464	15500	0	1	1	0	0	0	0	0	0	1	
C12	200073	100404	19332		1	0	0	1	0	0	0	0	0	0	
C12	200073	200596	27052		0	0	0	0	0	0	0	0	0	0	
C12	200076	100525	31778	24000	1	1	1	0	1	0	0	1	0	1	
C12	200095	100124	06054		0	0	0	0	0	0	0	0	0	0	0000
C12	200095	200504	11436		0	0	0	0	0	0	0	0	0	0	
C12	200099	100130	04536		0	0	0	0	0	0	0	0	0	0	
C12	200108	100141	14703	12975	0	1	1	0	0	0	0	0	0	0	0000
C12	200108	200616	30603	26000	0	1	1	0	1	0	0	0	0	1	
C12	200110	100145	40212	38000	1	1	1	0	0	0	1	0	0	1	
C12	200110	200731	52758	51000	0	1	1	0	1	0	1	0	0	1	
C12	200110	301676	62232												0095
C12	200111	100146	14829		0	0	0	0	0	0	0	0	0	0	
C12	200111	200912	25688		0	1	0	0	0	0	0	0	0	0	
C12	200169	100212	20961		0	0	0	0	0	0	0	0	0	0	
C12	200169	200750	34303		0	0	0	0	0	0	0	0	0	0	
C12	200169	301691	45459		0	0	0	0	0	0	0	0	0	0	
C12	200423	100539	23512												0000
C13	200007	100008	26907	22127	1	1	1	0	0	0	0	0	0	1	
C13	200007	200907	33731	28000	0	1	1	0	0	0	1	0	0	0	
C13	200032	100038	44097	36000	1	1	1	0	0	0	0	0	0	1	
C13	200032	200577	62778	62550	1	1	1	1	1	1	1	0	0	0	
C13	200033	100040	11712	05000	0	1	1	0	0	0	0	0	0	1	
C13	200042	100467	14713	14000	0	1	1	0	0	0	0	0	0	0	
C13	200042	200580	17574	13500	1	1	1	0	0	0	0	0	0	0	
C13	200109	100143	48634	40000	1	1	1	0	0	0	0	0	0	1	0000
C13	200128	100165	28195	03000	1	1	1	0	0	0	0	0	0	1	
C13	200128	200741	34760		0	0	0	0	0	0	0	0	0	0	
C13	200147	100186	24588	20000	1	1	1	0	1	0	1	1	0	1	
C13	200147	200636	33135		0	0	0	0	0	0	0	0	0	0	
C13	200158	100199	48828	46000	1	1	1	0	1	0	1	0	0	1	
C13	200158	200713	58341		0	0	0	0	0	0	0	0	0	0	
C13	200162	100203	20635		1	1	1	0	0	0	0	0	0	1	
C13	200162	200650	27775	26275	0	1	1	0	0	0	1	0	0	1	
C13	200162	301687	34550	28000	0	0	0	0	0	0	0	0	0	0	

C13	200194	100246	16625		0	0	0	0	0	0	0	0	0	0	
C13	200194	200677	30506	28000	0	1	1	0	0	0	1	0	0	0	
C13	200201	100254	46646	26000	1	1	1	0	1	0	1	1	0	1	
C13	200201	200686	57505	55000	0	1	1	0	0	0	1	0	0	0	
C13	200201	301620	70633	66000	1	1	1	1	1	1	1	1	0	1	0115
C13	200204	100257	23647	18000	1	1	1	0	0	0	1	0	0	1	0000
C13	200204	200678	33317	33000	0	1	1	0	0	0	0	0	0	0	
C13	200216	100274	14998		1	1	1	0	1	0	0	0	0	1	
C13	200216	200701	20257	15000	0	1	1	0	0	0	1	0	0	0	
C13	200216	301710	22028	21000	0	0	1	0	0	0	1	0	0	0	
C13	200217	100279	51485	47000	1	1	1	0	0	0	0	0	0	1	
C13	200217	200723	64163	53000	0	1	1	0	0	0	1	0	0	0	
C13	200217	301695	78078		0	0	0	0	0	0	0	0	0	0	
C14	200113	100148	17539	14000	1	1	1	0	0	0	0	0	0	0	
C14	200113	200618	19878	18000	0	1	0	1	1	0	0	0	0	0	
C14	200113	301920	27733	23000	0	0	1	0	0	0	0	0	0	0	
C14	200124	100161	05106	18000	1	1	1	0	1	1	1	0	0	1	
C14	200124	200755	11256		0	0	0	0	0	0	0	0	0	0	
C14	200127	100164	00001	00500	0	0	0	1	0	0	0	0	0	0	
C14	200127	200661	19601		0	0	0	0	0	0	0	0	0	0	
C14	200127	301689	28538		1	1	1	0	1	0	0	0	0	1	
C14	200149	100188	57299	51000	1	1	1	1	1	1	1	1	0	1	
C14	200149	200652	54896	42000	0	1	1	0	0	0	0	0	0	1	
C14	200157	100198	18313	15000	1	1	1	0	1	0	1	1	0	0	
C14	200180	100231	25417	21708	1	1	1	0	1	0	1	0	0	0	
C14	200180	200654	30593	25000	0	1	1	0	1	0	1	0	0	0	
C14	200180	301615	38935	37500	0	1	1	0	0	0	1	0	0	0	
C14	200224	100283	23084	21000	1	1	1	0	1	0	1	0	0	1	
C14	200224	200689	30257	23000	0	1	1	0	0	1	1	0	0	1	
C14	200224	301658	36510		0	0	0	0	0	0	0	0	0	0	
C14	200246	100308	20199	19000	1	1	1	0	1	1	1	1	0	1	
C14	200246	200736	25551	23000	0	0	1	0	0	1	1	0	0	0	
C14	200264	100331	23218	19759	1	1	1	0	0	0	1	0	0	1	
C14	200266	100334	41417	27100	1	1	1	1	1	1	1	0	0	1	
C14	200266	200708	56433												0095
C14	200266	301640	65441		0	1	1	0	1	0	0	0	0	0	
C14	200285	100358	40951	40000	1	1	1	1	0	0	1	0	0	1	
C14	200285	200749	49155		0	0	0	0	0	0	0	0	0	0	
C14	200285	301736	57955	57880	1	1	1	0	0	0	1	0	0	0	
C14	200307	100386	42459	35000	0	1	1	1	1	0	1	0	0	1	
C14	200307	200920	56340	45000	0	1	1	0	0	0	1	0	0	0	
C14	200307	301764	67945	65000	0	1	1	1	0	0	0	0	0	0	0100
C14	200316	100397	03180		0	0	0	0	0	0	0	0	0	0	
C14	200316	200760	07567	05000	1	1	1	1	0	1	1	0	0	0	
C14	200316	301881	11044	11000	0	1	0	0	0	0	1	0	0	0	
C14	200350	100432	26730		0	0	0	0	0	0	0	0	0	0	
C14	200350	200825	30000		0	1	1	0	0	1	0	1	0	0	
E31	200028	100034	26803	18000	1	1	1	0	1	0	1	0	0	1	
E31	200028	200586	34021		0	0	0	0	0	0	0	0	0	0	
E31	200075	100100	39586	36000	1	1	1	0	1	0	0	0	0	1	
E31	200075	200612	48450		0	0	0	0	0	0	0	0	0	0	
E31	200075	301685	57285	51000	1	1	1	1	1	0	0	1	0	0	
E31	200193	100243	16891	16790	1	1	1	0	0	0	0	0	0	1	
E31	200193	301701	27000												0110

F31	200295	100298	17647		0	0	0	0	0	0	0	0	0	
F31	200295	200830	22420	20000	0	0	0	0	0	0	1	0	0	1
F31	200295	301698	24793											0110
F31	200293	100369	11937	11000	1	1	1	0	1	1	1	1	0	1
F31	200293	200766	20466	15000	0	1	0	0	0	0	1	0	0	0
F31	200346	100428	30594	23000	1	1	1	0	0	0	0	0	0	1
F31	200346	200910	44074		0	0	0	0	0	0	0	0	0	0
F31	200357	100442	28426	12000	1	1	1	0	0	0	1	0	0	1
F31	200357	200772	41107	32000	0	1	1	0	0	0	1	0	0	1
F31	200357	301686	50471	47000	1	1	1	0	0	0	0	0	0	0
F31	200359	100444	64476	60000	1	1	1	0	0	1	1	0	0	1
F31	200370	100457	31558	29000	1	1	1	0	0	0	0	0	0	1
F31	200370	200808	35667	32500	0	1	1	0	0	0	0	0	0	0
F31	200370	301758	39231											0105
F31	200382	100479	13695		0	0	0	0	0	0	0	0	0	0
F31	200382	200864	20792		0	0	0	0	0	0	0	0	0	0
F31	200382	301857	37875	32000	0	1	1	0	0	0	0	0	0	0
F31	200385	100485	87801		1	1	1	0	1	0	1	0	0	1
F31	200386	100488	15400	11500	0	1	1	0	1	0	0	0	0	1
F31	200386	200847	25226	24000	0	1	0	0	0	0	1	0	0	0
F31	200386	301703	34089		0	0	0	0	0	0	0	0	0	0
F31	200403	100536	32385	29000	1	1	1	0	0	0	1	0	0	0
F31	200403	200815	44605	41000	1	1	1	0	0	0	1	0	0	0
F31	200411	100557	28913	25000	1	1	1	0	1	0	1	0	0	1
F31	200411	200885	33801	32000	1	1	1	1	1	1	1	0	0	1
F31	200412	100558	10548		0	0	0	0	0	0	0	0	0	0
F31	200412	200878	16710	15710	0	1	1	0	0	0	0	0	0	0
F31	200412	301760	23950	18000	0	1	1	0	0	0	1	0	0	1
F32	200131	100168	28898	24000	1	1	1	0	0	0	0	0	0	1
F32	200160	100201	15749		1	1	1	0	1	0	0	0	0	1
F32	200263	100330	06002		0	0	0	0	0	0	0	0	0	0
F32	200263	200751	16077		0	0	0	0	0	0	0	0	0	0
F32	200269	100337	07770		0	0	0	0	0	1	0	0	0	0
F32	200276	100346	16285		0	0	0	0	0	0	0	0	0	0
F32	200276	301812	44692	40000	0	1	1	0	1	0	1	0	0	1
F32	200280	100364	12830		0	0	1	0	0	0	0	0	0	0
F32	200280	200753	30727	20000	0	1	0	0	0	0	1	0	0	0
F32	200280	301708	45803		0	0	1	0	0	0	1	0	0	0
F32	200322	100403	03574		0	0	0	0	1	0	0	0	0	0
F32	200322	200828	11047		0	0	0	0	0	0	0	0	0	0
F32	200322	301709	14992		0	0	0	0	0	0	0	0	0	0
F32	200324	100405	25757	20000	0	1	1	0	1	1	0	0	0	1
F32	200324	200750	42681	41000	0	0	0	0	0	0	1	0	0	0
F32	200324	301778	56500	43000	0	0	1	0	0	0	0	0	0	0
F32	200327	100408	03180		0	0	0	0	0	0	0	0	0	0
F32	200327	200754	12025	06000	0	1	1	0	0	0	1	0	0	0
F32	200327	301767	25726	21000	0	1	1	0	0	0	0	0	0	0
F32	200335	100417	11603	11000	1	1	1	0	1	0	0	0	0	1
F32	200335	200806	24849	17000	0	1	1	0	1	1	1	0	0	1
F32	200336	100418	05039		0	0	0	0	0	0	0	0	0	0
F32	200339	100421	13737		0	0	0	0	0	0	0	0	0	0
F32	200339	200809	22613	19000	0	1	1	0	0	1	0	0	0	0
F32	200375	200836	18873		0	0	0	0	0	0	0	0	0	0
F32	200388	100493	04396		0	0	0	0	0	0	0	0	0	0

F32	200388	200876	13833	12000	0	1	1	1	0	1	1	0	0	0	
F33	200001	100001	37444	36000	0	1	1	0	0	0	1	1	0	1	
F33	200001	301663	57330		0	1	0	0	0	0	0	0	0	0	
F33	200002	100003	34145	32000	1	1	1	0	1	0	0	0	0	1	
F33	200011	100014	35089	28500	1	1	1	1	1	0	1	1	0	1	
F33	200020	100024	00184		0	0	0	0	0	0	0	0	0	0	
F33	200020	200021	14855		0	0	0	0	0	0	0	0	0	0	
F33	200024	100565	21156		0	0	0	0	0	0	0	0	0	0	
F33	200024	200583	26945	24000	1	1	1	0	1	1	1	0	0	0	
F33	200029	100035	18800		0	0	0	0	0	0	0	0	0	0	
F33	200104	100137	23746	15000	1	1	1	0	0	0	1	0	0	1	
F33	200104	200617	31745	31400	1	1	1	0	1	0	0	0	0	1	
F33	200107	100140	32350	31000	1	1	1	0	0	0	1	0	0	1	
F33	200107	200623	46541		0	0	0	0	0	0	0	0	0	0	
F33	200114	100149	24446	25000	1	1	1	0	1	0	1	0	0	1	0000
F33	200121	100158	42541	31518	1	1	1	0	1	0	0	0	0	1	
F33	200121	200628	55298	46122	0	0	1	0	0	0	1	0	0	0	
F33	200121	301870	69414	64420	0	0	1	1	1	1	1	0	0	0	
F33	200134	100171	08086	08000	1	1	1	0	0	0	0	0	0	0	
F33	200134	200664	11188	11100	0	1	1	0	0	0	0	0	0	1	
F33	200134	301742	15370	15370	1	1	1	0	1	0	1	0	0	0	
F33	200202	100255	21657		1	1	1	0	0	0	0	0	0	1	
F33	200205	100259	17634		1	1	1	0	0	0	0	0	0	1	0000
F33	200205	200676	28418		0	0	0	0	0	0	0	0	0	0	
F33	200211	100268	30355	26000	1	1	1	0	0	1	0	0	0	1	
F33	200211	200699	44570	40000	0	0	1	1	0	0	1	0	0	0	
F33	200211	301661	54794		0	1	1	0	1	1	0	0	0	0	
F33	200226	100285	13346		0	0	0	0	0	0	0	0	0	0	
F33	200226	200831	27537		0	0	0	0	0	0	0	0	0	0	
F33	200226	301720	38749	31500	0	1	1	0	1	0	1	0	0	1	
F33	200422	100543	22100												0000
F34	200057	200902	31939	28000	0	0	0	0	0	0	1	0	0	0	
F34	200057	301727	40451	35000	1	1	1	0	0	0	0	0	0	1	
F34	200071	100092	10588		0	0	0	0	0	0	0	0	0	0	
F34	200071	200609	20261		0	0	0	0	0	0	0	0	0	0	
F34	200182	100233	19727		1	1	1	1	0	0	0	0	0	1	
F34	200213	100270	09874	07000	0	0	0	0	0	1	0	0	0	1	0000
F34	200213	200827	19596	13000	0	0	0	0	0	0	0	0	0	1	
F34	200231	100292	08731	06000	1	0	1	0	0	0	1	0	0	1	
F34	200231	200690	15251	13000	1	1	1	0	1	1	0	0	0	1	
F34	200236	100297	27916		0	1	1	0	1	0	1	1	0	1	
F34	200249	100311	22230	08000	1	1	1	0	0	0	1	1	0	1	
F34	200249	301704	37807		0	0	0	0	0	0	0	0	0	0	
F34	200260	100326	15244	15000	1	1	1	0	0	0	1	0	0	1	
F34	200260	200712	19458	15000	0	1	1	0	0	0	0	0	0	0	
F34	200286	100359	48925		0	0	0	0	0	0	0	0	0	0	
F34	200287	100360	10650		0	0	0	0	0	0	0	0	0	0	
F34	200287	200840	17364	15100	1	1	1	0	1	1	1	0	0	1	
F34	200291	100365	20930		0	0	0	0	0	0	0	0	0	0	
F34	200291	200745	31534	23000	0	0	1	0	0	0	1	0	0	0	
F34	200291	301725	38570	32000	1	1	0	0	1	0	0	0	0	0	0130
F34	200308	100387	13753	06000	0	0	0	0	0	0	0	0	0	0	
F34	200308	200774	17960		0	0	0	0	0	0	0	0	0	0	
F34	200308	301674	21613	18200	0	1	1	0	0	0	1	0	0	0	

F34	200311	100391	11770		0	0	0	1	0	0	0	0	0	0	
F34	200311	200790	21712	21000	0	1	1	1	0	0	0	0	0	0	
F34	200326	100407	12414		0	0	0	0	0	0	0	0	0	0	
F35	200061	100081	24719	22000	1	1	1	0	0	0	0	0	0	0	
F35	200061	200668	37458	34000	0	1	1	1	0	0	0	0	0	0	
F35	200087	100114	06000		0	0	0	0	0	0	0	0	0	0	
F35	200098	200622	30669	30569	0	1	1	0	0	0	1	0	0	0	
F35	200098	301752	36289	34791	0	1	1	0	0	0	0	0	0	1	
F35	200100	100131	35203		1	1	1	0	0	0	0	0	0	1	0020
F35	200139	100176	29948		0	0	0	0	0	0	1	0	0	0	
F35	200139	200667	35539	34000	1	0	0	0	0	0	0	0	0	0	
F35	200139	301739	43917	38000	0	1	1	0	1	0	1	0	0	0	
F35	200153	100193	14178		0	0	0	0	0	0	0	0	0	0	0000
F35	200153	200629	22298	19000	0	0	0	0	0	0	0	0	1	0	
F35	200170	100213	35891		1	1	1	0	0	0	0	0	0	0	
F35	200170	301762	62152	62100	0	1	1	0	0	0	0	0	0	0	0120
F35	200172	100218	41813		1	1	1	0	0	0	1	0	0	0	
F35	200175	100221	24600	23000	0	1	1	0	0	0	0	0	0	0	
F35	200175	200637	34482	30000	1	1	1	0	1	0	1	0	0	0	
F35	200190	100242	22050	18000	1	1	1	0	1	1	0	0	0	1	
F35	200190	200651	29155	29100	0	0	1	0	0	0	1	0	0	0	
F35	200190	301700	39620		0	0	0	0	0	0	1	0	0	0	
F35	200191	100243	43466	33000	0	1	1	0	0	0	1	0	1	1	
F35	200191	200665	57194		0	0	0	0	0	0	0	0	0	0	
F35	200191	301738	71137	55000	0	1	1	1	0	0	1	0	0	0	
F35	200195	100247	29496	29000	1	1	1	0	0	0	0	0	0	1	
F35	200195	200681	35109												0115
F35	200206	100261	29746	24000	1	1	1	0	1	0	0	0	0	1	0000
F35	200206	200679	15228	34000	0	1	1	0	0	0	0	0	1	0	
F35	200206	301753	58183	53500	0	1	1	0	0	0	1	0	0	0	
F35	200209	100266	07959		0	0	0	0	0	0	0	0	0	0	
F35	200210	100267	14420	12000	1	1	1	0	0	0	1	0	0	1	
F35	200210	200787	25257		0	0	0	0	0	0	0	0	0	0	
F36	200023	100028	63223	63000	1	1	1	0	0	0	0	0	0	0	
F36	200060	100079	16896	13000	1	1	1	0	0	0	1	1	0	1	
F36	200060	200658	28336	23336	1	1	1	0	0	1	1	0	0	0	
F36	200069	100089	10328		0	0	0	0	0	0	0	0	0	0	
F36	200070	100090	08857		0	0	0	0	0	0	0	0	0	0	
F36	200096	100126	21491	14000	1	1	1	0	1	1	1	0	0	1	
F36	200096	200620	27373	24370	0	1	1	0	0	0	0	0	0	0	
F36	200101	100133	35217	24000	1	1	1	0	0	0	0	0	0	1	0000
F36	200101	200626	46956		0	0	0	0	0	0	0	0	0	0	
F36	200203	100256	33160		1	1	1	0	1	0	0	0	0	1	
F36	200254	100318	19466	18000	0	1	1	0	1	0	0	0	0	1	
F36	200315	100396	32922	20000	0	1	1	0	0	0	0	0	0	0	
F36	200315	200810	45329												0110
F36	200348	100430	13043		0	0	0	0	0	0	0	0	0	0	
F36	200348	100430	13043												0000
F36	200364	100450	15333	10000	1	1	1	0	0	0	1	0	0	0	
F36	200394	200824	47472	48000	0	1	1	0	1	0	1	0	0	0	
F36	200394	301735	55505		0	0	0	0	0	0	0	0	0	0	
F36	200407	100547	15061	12000	0	1	1	0	0	0	0	0	0	1	
F36	200407	200844	21299	20000	0	1	1	0	0	0	1	0	0	0	
F36	200414	100560	24688		1	1	1	0	1	0	1	1	0	1	

F36	200414	200893	30035		0	0	0	0	0	0	0	0	0	0	
G51	200085	100112	17521	16500	1	1	1	0	0	0	1	0	0	1	
G51	200086	100113	11047		0	0	0	0	0	0	0	0	0	0	
G51	200086	200599	19081		0	0	0	0	0	0	0	0	0	0	
G51	200268	100336	24106	11677	1	1	1	0	1	0	0	0	0	1	
G51	200268	200727	30100		0	0	0	0	0	0	0	0	0	0	
G51	200268	301721	36519	34167	1	1	1	0	0	1	1	0	0	0	
G51	200282	100354	13693	07000	1	1	1	0	0	0	0	0	0	1	
G51	200282	200822	22904		0	0	0	0	0	0	0	0	0	0	
G51	200328	100410	47552	46000	1	1	1	0	0	0	1	0	0	1	
G51	200328	200767	57545	57000	0	1	1	1	1	1	1	0	0	1	0115
G51	200329	100411	31528	28000	1	1	1	0	0	1	1	0	0	1	
G51	200329	200591	36831	36000	0	1	1	0	0	1	1	0	0	0	
G51	200372	100461	20082		1	1	1	0	0	0	1	0	0	1	
G51	200372	200880	32895	31000	0	0	1	0	0	0	0	0	0	0	
G51	200374	100463	28820	26000	1	1	0	0	0	0	0	0	0	0	
G51	200374	200838	32714	31500	0	1	1	0	1	1	1	0	0	0	
G51	200374	301706	36014		0	0	0	0	1	0	1	0	0	1	
G51	200380	100472	45459	40000	1	1	1	0	1	0	1	1	0	0	
G51	200380	200845	53923	52000	0	1	1	0	0	0	1	0	0	0	
G51	200392	100504	17388	17000	0	1	1	1	0	0	0	0	0	1	
G51	200398	100521	26906	26700	1	0	0	0	1	0	0	0	0	1	
G51	200398	200817	33162	32000	0	0	1	0	0	0	1	0	0	0	
G51	200399	100526	31000	25500	1	1	1	0	0	0	0	0	0	0	
G51	200399	200901	40963		0	0	0	0	0	0	0	0	0	0	
G51	200399	301613	45226	41300	0	1	1	0	0	0	0	0	0	0	
G51	200400	100528	15946	15000	1	1	1	0	0	0	1	0	0	1	
G51	200400	200819	24480		0	0	0	0	0	0	0	0	0	0	
G51	200415	200873	47983		0	0	0	0	0	0	0	0	0	0	
G51	200416	200874	41775		0	0	0	0	0	0	0	0	0	0	
G51	200418	100564	08110		0	0	0	0	0	0	0	0	0	0	
G51	200418	200857	13592	13000	0	1	1	0	0	0	1	0	0	0	
G51	200418	301619	17267		0	0	0	0	0	0	0	0	0	0	
G52	200072	100094	17113		0	0	0	0	0	0	0	0	0	0	
G52	200218	100276	22136	18000	1	1	1	0	0	0	1	0	0	1	
G52	200221	100280	14944		0	0	0	0	0	0	0	0	0	0	
G52	200221	200688	23426	16500	0	1	1	0	0	0	1	0	0	1	
G52	200221	301719	34118	31000	0	1	1	0	1	0	1	0	0	0	
G52	200243	100305	13280		0	0	0	0	0	0	0	0	0	0	
G52	200270	100338	35087												0000
G52	200270	100338	35087	52000	1	1	1	0	1	1	1	0	0	0	
G52	200270	200832	69132	50000	0	1	1	0	0	0	1	0	0	0	0140
G52	200280	100352	30000	10200	1	1	1	0	0	0	1	1	0	1	
G52	200280	200757	35622	33000	0	1	1	0	1	1	1	0	0	1	
G52	200280	301749	42139												0000
G52	200292	100367	28688	21000	0	1	1	0	0	0	0	0	0	0	0000
G52	200292	200743	43506	34000	0	1	1	0	0	0	0	0	0	0	
G52	200292	301711	58012	57000	0	1	1	0	1	0	0	0	0	0	
G52	200294	100370	24886	24000	1	1	1	0	1	0	0	0	0	1	
G52	200294	200742	33834		0	0	0	0	0	0	0	0	0	0	
G52	200306	100385	34295	30000	0	1	1	1	1	0	1	0	0	1	
G52	200306	200763	42701	38000	0	1	1	0	0	1	1	0	0	0	
G52	200320	100401	14784		0	0	0	0	0	0	0	0	0	0	
G52	200320	200771	18773		0	0	0	0	0	0	0	0	0	0	

G52	200320	301733	22952	22500	0	1	1	0	0	0	1	0	0	0	
G52	200334	100416	35950	29000	1	1	1	0	1	0	0	0	0	0	
G52	200334	200779	43267	39000	1	1	1	0	0	1	0	0	0	0	
G52	200334	301896	55896												0095
G52	200338	100420	22741	20000	1	1	1	0	1	0	1	0	0	1	
G52	200338	200795	33027		0	0	0	0	0	0	0	0	0	0	
G52	200338	301886	41836	31000	0	1	0	0	0	0	0	0	0	0	
G52	200353	200792	27936	26900	0	1	1	0	0	0	1	0	0	0	
G52	200353	301734	37830		0	0	0	0	0	0	0	0	0	0	
G52	200362	100447	23369		0	0	0	0	0	0	0	0	0	0	0000
G52	200362	200813	34793	30000	0	1	1	0	0	1	1	0	0	0	0140
G52	200362	301780	45711	35000	0	1	1	0	0	0	1	0	0	0	
G52	200369	100455	16841	16000	0	1	1	0	1	1	1	1	0	0	
G52	200369	200842	27844	24000	0	0	1	0	0	0	0	0	0	0	0140
G52	200391	100503	21100		1	1	1	0	0	0	1	0	0	1	
G52	200391	200918	24850												0140
G52	200391	301750	27933		0	0	0	0	0	0	0	0	0	0	
G53	200010	100012	21734	15450	0	1	1	0	0	1	1	0	0	1	
G53	200010	200000	35978	33750	0	1	1	0	0	0	1	0	0	0	
G53	200030	100036	46556		0	1	1	0	0	0	0	0	0	0	
G53	200030	200888	55503		0	0	0	0	0	0	0	0	0	0	
G53	200035	100044	08026		0	0	0	0	0	0	0	0	0	0	
G53	200051	100066	25875	19500	1	1	1	0	0	0	1	0	0	1	
G53	200051	200584	35541		0	0	0	0	0	0	0	0	0	0	
G53	200052	100068	18974		1	1	1	0	0	0	1	0	0	1	0000
G53	200079	100105	43115	23000	1	1	1	0	1	0	0	0	0	1	
G53	200079	200633	57205	47570	0	1	1	0	1	0	0	0	0	1	
G53	200106	100139	07145		0	0	0	0	0	0	0	0	0	0	
G53	200106	200885	15672	10600	1	1	1	0	1	1	1	0	0	0	
G53	200112	100147	23565	19000	1	1	1	0	1	0	1	0	0	1	
G53	200112	200653	29097		0	0	0	0	0	0	0	0	0	0	
G53	200119	100156	21081		0	0	0	0	0	0	0	0	0	0	
G53	200136	100163	16851	14000	0	0	1	0	0	0	0	0	0	0	
G53	200136	100173	16226		0	0	0	0	0	0	0	0	0	0	
G53	200148	100187	11934		0	0	0	0	0	0	0	0	0	0	
G53	200148	200639	18200	16000	0	1	1	0	0	0	0	0	0	0	
G53	200156	100197	31316	24000	1	1	1	0	1	0	0	0	0	1	
G53	200171	100214	28875		1	1	1	0	0	0	1	0	1	0	0000
G53	200171	200656	35815		0	0	0	0	0	0	0	0	0	0	
G53	200179	100229	28369	27000	1	1	1	0	0	0	0	0	0	0	
G54	200009	100532	26042												0000
G54	200009	200874	33146		0	0	0	0	0	0	0	0	1	0	
G54	200009	301832	43275												0120
G54	200036	100045	41351	37000	1	1	1	0	1	0	1	0	0	0	
G54	200036	200589	50509	46200	1	1	1	0	1	0	1	0	0	1	
G54	200039	100048	35910		0	0	0	0	0	0	0	0	0	0	
G54	200040	200588	26737	24650	1	1	1	0	1	1	1	0	0	0	
G54	200054	100071	38683	24000	1	1	1	0	1	1	1	1	0	1	
G54	200092	100121	17383		0	0	0	0	0	0	0	0	0	0	
G54	200092	200606	22131		0	0	0	0	0	0	0	0	0	0	
G54	200097	100127	20886	12000	0	1	1	0	0	0	0	0	0	1	0000
G54	200097	200659	32638	22257	1	1	1	0	1	1	1	0	0	1	
G54	200116	100152	32821	32000	1	1	1	0	1	0	1	0	0	1	0000
G54	200116	200884	46255	38800	0	1	1	0	1	0	1	0	0	0	

G54	200125	100162	18837	09000	1	1	1	0	1	0	1	0	0	1	
G54	200143	100181	48782	47000	1	1	1	0	0	0	1	0	0	1	0000
G54	200143	200627	61463	51000	0	1	1	0	0	0	1	0	0	0	
G54	200155	100196	48432	36333	1	1	1	0	0	0	1	0	0	1	
G54	200163	100204	19743	12000	1	1	1	0	0	0	1	0	0	1	
G54	200176	100223	25400	22000	0	1	1	0	0	1	0	0	0	0	
G54	200176	200818	36401	24000	0	1	1	0	0	1	0	0	0	0	
G54	200176	301455	41090												0110
G54	200207	100263	28466	27000	1	1	1	0	0	0	1	1	0	1	0000
G54	200207	200776	41945		0	0	0	0	0	0	0	0	0	0	
G54	200222	100281	21325	16000	1	1	1	0	0	0	0	0	0	1	
G54	200222	200719	29127		0	0	0	0	0	0	0	0	0	0	
G54	200256	100321	23502	12000	1	1	1	1	1	1	1	1	0	1	0000
G54	200256	200722	30843	25000	0	1	1	0	0	0	1	0	0	1	
G55	200004	100005	32897	27000	1	1	1	0	1	0	1	0	0	1	
G55	200004	200571	42913		0	0	0	0	0	0	0	0	0	0	
G55	200005	100006	27396	15000	1	1	1	0	0	0	1	0	0	1	
G55	200005	200572	39974	28262	1	1	1	1	1	1	1	0	0	0	
G55	200014	100018	14928	10800	0	1	1	0	0	0	0	0	0	0	
G55	200014	200574	22056		0	0	0	0	0	0	0	0	0	0	
G55	200077	100478	17635		0	0	0	0	0	0	0	0	0	0	
G55	200078	100476	16496		0	0	1	0	0	0	0	0	0	0	
G55	200078	200666	26333	18000	0	1	1	0	0	0	0	0	0	0	
G55	200081	100107	17199		0	0	0	0	0	0	0	0	0	0	
G55	200081	200570	28082		0	0	0	0	0	0	0	0	0	0	
G55	200091	100119	09011		0	0	0	0	0	0	0	0	0	0	0000
G55	200091	200603	12282		0	0	0	0	0	0	0	0	0	0	
G55	200102	100135	10478		0	0	0	0	0	0	0	0	0	0	
G55	200102	200619	17188		0	1	1	0	0	1	1	0	0	0	
G55	200140	100178	29963		0	0	0	0	0	0	0	0	0	0	
G55	200140	200670	39294		0	0	0	0	0	0	0	0	0	0	
G55	200198	100251	22085	14000	1	1	1	0	1	1	1	0	0	0	
G55	200198	200568	29800		0	0	0	0	0	0	0	0	0	0	
G55	200198	301675	38521		0	1	1	0	0	0	0	0	0	0	
G55	200253	100317	06421		0	0	0	0	0	0	0	0	0	0	
G55	200253	200573	08320		0	0	0	0	0	0	0	0	0	0	
G55	200253	301680	13140		0	0	0	0	0	0	0	0	0	0	
G55	200255	100319	24881		0	0	0	0	0	0	0	0	0	0	0000
G55	200257	100323	28599	28000	1	1	1	0	1	0	1	1	0	1	
G55	200257	200701	43654	38000	0	1	1	0	0	0	1	0	0	1	0100
G55	200278	100349	18386	13000	0	1	1	0	1	0	0	0	0	1	0000
G55	200378	100469	35550		1	1	1	0	0	0	1	0	0	1	
G55	200378	200917	54969		0	0	0	0	0	0	0	0	0	0	
G55	200378	301684	69070		0	0	0	0	0	0	0	0	0	0	
G56	200026	100032	20007	19000	1	1	1	0	1	0	0	0	0	1	
G56	200074	100098	15181	29000	1	1	1	0	1	0	1	0	0	1	
G56	200105	100138	27222	17666	1	0	1	0	0	0	1	1	0	1	
G56	200223	100282	14821	14000	1	1	1	0	1	0	1	0	0	1	
G56	200223	200715	19522	19000	1	0	1	0	0	0	1	0	0	0	
G56	200281	100353	03029		0	0	0	0	0	0	0	0	0	0	
G56	200283	100355	15907		0	1	1	0	0	0	1	0	0	1	0000
G56	200283	200862	23048	22500	0	1	1	0	0	0	0	0	0	0	
G56	200319	100400	19276	19000	1	1	1	0	0	0	1	0	0	1	
G56	200319	200858	29630	20000	0	1	1	0	0	0	1	0	0	0	

G56	200333	100415	10601	10500	0	1	1	0	0	0	0	0	0	0	
G56	200333	200781	21025	11000	0	1	1	0	1	0	0	0	0	0	
G56	200341	100423	32014	26750	1	1	1	0	1	1	1	0	0	1	
G56	200342	100424	16006		0	0	0	0	0	0	0	0	0	0	
G56	200342	200777	22779	20000	0	1	1	0	0	0	1	0	0	0	
G56	200343	100425	25515	07000	1	1	1	0	0	0	1	0	0	1	
G56	200343	200882	35904		0	0	0	0	0	0	0	0	0	0	
G56	200344	100426	46911	46000	1	1	1	0	1	0	0	0	0	1	
G56	200344	200783	52398	05000	0	1	1	0	0	0	1	0	0	0	
G56	200344	301473	66832												0115
G56	200345	100427	20705	18000	1	1	1	0	1	1	1	0	0	1	
G56	200345	200883	32602	31600	0	1	1	0	0	0	0	0	0	0	
G56	200354	100437	29843		0	0	0	0	0	0	0	0	0	0	
G56	200354	200784	37662		0	0	0	0	0	0	0	0	0	0	
G56	200368	100454	14031		0	0	0	0	0	0	0	0	0	0	
G56	200368	200860	29000		0	1	1	0	1	0	1	0	0	0	
G56	200409	100550	17064		0	0	0	0	0	0	0	0	0	0	
G56	200410	100554	43148	43000	1	1	1	0	0	0	1	0	0	1	
G56	200410	200909	53091	40000	0	1	1	0	0	0	1	0	0	0	
G61	200068	100488	36836	26000	0	1	1	0	0	0	1	1	0	1	
G61	200084	100490	30906		0	0	1	0	0	0	1	0	0	0	
G61	200088	100489	18980	10000	0	1	1	0	0	0	0	0	0	1	
G61	200088	200807	26040	22000	0	0	0	0	0	0	1	0	0	0	
G61	200088	301905	35203	33000	0	0	0	0	0	1	0	0	0	0	
G61	200115	100151	20676	18000	1	1	1	0	0	0	0	0	0	0	
G61	200115	200697	21897	20000	0	1	1	0	0	0	1	0	0	1	
G61	200115	301694	26790	26000	0	1	1	0	0	0	0	0	0	1	
G61	200150	100189	30746		0	0	0	0	0	0	0	0	0	0	
G61	200150	301678	52394	45000	1	1	1	0	0	0	1	0	0	0	
G61	200159	100200	22321	12000	1	1	1	0	0	0	0	0	0	0	
G61	200164	100205	29835		0	0	0	0	0	0	0	0	0	0	
G61	200166	100207	13753		0	0	0	0	0	0	0	0	0	0	0000
G61	200168	100211	08732	05000	1	0	0	0	1	0	1	0	0	1	
G61	200168	200647	14772		0	0	0	0	0	0	0	0	0	0	
G61	200168	301737	18647	18300	0	1	1	0	0	0	1	0	0	0	
G61	200183	100234	08682	06000	0	0	0	0	0	0	0	0	0	0	0000
G61	200183	200863	18974		0	0	0	0	0	0	0	0	0	0	
G61	200185	100237	19643	10000	0	0	0	0	0	0	0	0	0	0	
G61	200187	100239	23064	18000	1	1	1	0	1	1	1	0	0	1	
G61	200187	200662	30241		0	0	0	0	0	0	0	0	0	0	
G61	200196	100248	28575	27000	1	1	1	0	0	0	1	0	0	1	
G61	200196	200680	32831	32500	0	1	1	0	0	0	1	0	0	1	
G62	200019	100023	25535	24000	1	1	1	0	1	0	0	0	0	1	
G62	200019	200581	31768	29750	0	0	0	0	0	0	1	0	0	0	
G62	200050	100065	54181	54000	1	1	1	0	1	0	1	0	0	1	
G62	200058	100076	30206	17000	1	1	1	0	0	0	1	0	0	1	
G62	200059	100077	30737	12000	1	1	1	0	0	0	0	0	0	1	
G62	200059	200590	45929		0	0	0	0	0	0	0	0	0	0	
G62	200080	100106	28977		1	1	1	0	0	0	0	0	0	0	
G62	200090	100117	18093	12000	0	0	0	0	0	0	0	0	0	0	
G62	200090	200621	30772		0	0	0	0	0	0	0	0	0	0	
G62	200103	100136	10743		0	0	0	0	0	0	0	0	0	0	
G62	200103	200631	21538		0	0	0	0	0	0	0	0	0	0	
G62	200103	301834	28640	25000	0	0	0	0	0	0	1	0	0	0	

G62	200117	100154	09286		0	0	0	0	0	0	0	0	0	0	
G62	200117	200632	23116		0	0	0	0	0	0	0	0	0	0	
G62	200120	100157	17069		0	0	0	0	0	0	0	0	0	0	
G62	200120	200635	28174	23000	0	1	1	0	1	0	0	0	0	1	
G62	200144	100183	20830	12500	1	1	1	0	0	0	0	0	0	1	
G62	200144	301867	41423	20000	0	0	0	0	1	0	0	0	0	0	
G62	200165	100206	26955	16020	1	1	1	0	0	0	1	0	0	1	
G62	200167	100209	10246	05000	0	0	0	0	0	0	0	0	0	1	0000
G62	200167	200630	18383		0	0	0	0	0	0	0	0	0	0	
G62	200197	100249	16983												0000
G62	200197	200249	16983	16000	1	1	1	0	1	1	1	0	0	1	
G62	200197	301773	37718	34500	0	0	1	0	1	1	1	0	0	0	
G62	200247	100309	22985	23000	0	1	1	0	1	0	1	1	0	1	
G62	200247	200737	34570		0	0	0	0	0	0	0	0	0	0	
G62	200247	301437	39267												0085
G63	200174	100220	16635	15700	1	1	1	0	0	0	0	0	0	0	
G63	200174	200657	26168		0	0	0	0	0	0	0	0	0	0	
G63	200200	100253	32288	27000	1	1	1	0	0	0	1	0	0	1	
G63	200200	200734	47108	45500	0	1	1	1	1	0	0	0	1	1	
G63	200227	100286	30984	26000	1	1	1	0	1	1	1	0	0	1	0000
G63	200227	200644	60331	51000	1	1	1	0	0	0	1	0	0	0	
G63	200248	100310	17692	16000	0	1	1	0	1	0	1	1	0	1	
G63	200275	100344	11888		0	0	0	0	0	0	0	0	0	0	0000
G63	200312	100393	40688	32000	1	1	1	0	0	0	1	0	0	1	
G63	200312	200765	55858		0	1	1	0	0	1	1	0	0	0	
G63	200312	301634	67588	47000	1	1	1	0	1	1	1	0	0	1	
G63	200365	100451	09584		0	0	0	0	0	0	0	0	0	0	
G63	200365	200800	17263	10200	0	1	1	0	0	0	0	0	0	0	
G63	200367	100453	31803	25000	1	1	1	0	0	1	1	0	0	1	
G63	200367	200802	42336		0	0	0	0	0	0	0	0	0	0	
G63	200401	100530	14307	06500	1	1	1	0	0	0	1	0	0	0	
G63	200404	100541	34955	10000	1	1	1	0	0	0	1	0	0	0	0000
G63	200404	200673	40848	38000	0	0	0	0	1	1	1	0	0	0	
G63	200406	100546	24311	12000	1	1	1	0	1	1	1	0	0	1	
G63	200406	200841	31932	25000	1	1	1	0	1	1	1	0	0	0	
G63	200408	100549	27618	05500	1	1	1	0	0	0	0	0	0	1	
G63	200408	200846	35020		0	0	0	0	0	0	0	0	0	0	
G63	200413	100559	37001		0	1	1	0	1	0	0	0	0	1	
G63	200413	200850	43350	40000	0	1	1	0	1	0	1	0	0	0	
G63	200413	301668	49622		0	0	1	0	0	0	0	0	0	0	
G63	200417	100563	17011	14300	1	1	1	0	1	1	1	0	0	1	
G63	200417	200875	23201		0	0	0	0	0	0	0	0	0	0	
G66	200027	100033	30237	25000	0	1	1	0	0	0	0	0	0	0	
G66	200027	200602	37472	33000	0	0	0	0	0	0	0	0	0	1	
G66	200037	200587	36696		0	0	0	0	0	0	0	0	0	0	
G66	200041	100051	20110	16000	1	1	1	0	1	0	1	0	0	1	
G66	200082	100108	18518	14000	1	1	1	0	0	0	0	0	0	1	0000
G66	200082	200604	23850		0	0	0	0	0	0	0	0	0	0	
G66	200093	100122	12557		0	0	0	0	0	0	0	0	0	0	
G66	200146	100185	09255		0	0	0	0	0	0	0	0	0	0	
G66	200146	200972	26003	20000	0	1	1	0	0	0	1	0	0	0	
G66	200214	100272	24136	22000	1	1	1	0	1	0	1	0	0	1	
G66	200214	200693	38247	37000	0	1	1	0	0	0	1	0	0	1	
G66	200225	100284	22557		0	1	1	0	1	0	1	1	0	1	

666	200225	200735	32551		0	0	0	0	0	0	0	0	0	0
666	200232	100293	11772		0	0	0	0	0	0	0	0	0	0
666	200232	200740	22346		0	0	0	0	0	0	0	0	0	0
666	200244	100306	00552	05000	0	1	1	0	1	0	1	0	0	1
666	200244	200604	12600		0	0	0	0	0	0	0	0	0	0
666	200244	301741	18101	16000	0	1	1	0	0	1	1	0	0	0
666	200245	100307	30374	28000	1	1	1	0	1	1	1	0	0	0
666	200245	200710	43191											0100
666	200251	100313	17840		0	0	0	0	0	0	1	1	0	0
666	200272	100348	29292	23500	1	1	1	0	0	0	1	1	0	1
666	200272	200730	32843		0	0	0	0	0	0	0	0	0	0
666	200272	301712	36062		0	0	0	0	0	0	0	0	0	0
666	200273	100342	25520		1	1	1	0	1	1	1	0	0	1
666	200273	200830	31999		1	1	1	0	1	1	1	0	0	0
666	200273	301784	37067		0	0	0	0	0	0	0	0	0	0
667	200083	100109	30771	24000	0	1	1	0	0	0	1	0	0	1
667	200083	200601	46104	38000	0	1	1	0	0	0	0	0	0	0
667	200145	100184	13264	12000	1	1	1	0	0	0	1	0	0	1
667	200145	200717	26563		0	0	0	0	0	0	0	0	0	0
667	200200	200695	36504											0065
667	200220	100278	43268	20000	1	1	1	0	0	0	1	1	0	1
667	200220	200706	50983	58850	0	1	1	0	0	0	1	0	0	1
667	200228	100288	28454	21000	0	1	1	0	0	0	0	0	0	0
667	200228	200720	31237											0130
667	200237	100298	36596		0	1	1	0	1	0	1	1	0	1
667	200258	100324	13838		0	0	0	0	0	0	0	0	0	0
667	200274	100342	29833	27000	1	1	1	0	1	1	1	1	0	1
667	200277	100347	00309	09300	0	0	0	0	1	1	1	0	0	0
667	200277	200803	16346	11000	0	1	1	0	0	0	1	0	0	0
667	200305	100384	32980	20300	1	1	1	0	1	0	0	0	0	1
667	200305	200785	39411	35000	0	0	0	0	1	0	1	0	0	0
667	200389	100495	36732		0	0	0	0	0	0	0	0	0	0000
667	200393	100505	28934	20000	1	1	1	0	0	0	1	0	0	1
667	200402	100535	24174	05000	1	1	1	0	0	0	1	0	0	0
667	200405	100545	30491		1	1	1	0	0	0	1	0	0	1
667	200420	301922	31737		0	0	0	0	0	0	0	0	0	0
671	200053	100070	32800	28000	0	1	1	0	0	0	1	0	0	1
671	200053	200889	48094	39000	0	1	1	0	0	0	1	0	1	0
671	200053	301760	58323	55000	0	1	1	1	0	0	0	0	0	0
671	200065	100085	23875	22000	0	1	1	0	0	0	0	0	0	1
671	200065	200593	29894	24000	0	1	1	0	0	0	0	0	0	0
671	200065	301469	36661											0105
671	200132	100169	35918	25000	1	1	1	0	0	0	0	0	0	0
671	200132	200625	42340	38000	0	1	1	0	0	0	1	0	0	1
671	200303	100382	23822	23000	1	1	1	0	0	0	0	0	0	1
671	200303	200908	23822		0	0	0	0	0	0	0	0	0	0
671	200303	301693	23822		0	0	0	0	0	0	0	0	0	0
671	200318	100399	16060		0	0	0	0	0	0	0	0	0	0
671	200318	200782	28311	20000	0	0	1	0	0	0	0	1	0	0
671	200331	100413	21604	16500	1	1	1	0	1	0	1	0	0	0
671	200331	200758	30510		0	0	0	0	0	0	0	0	0	0
671	200331	301617	36607	32000	1	1	1	0	0	0	1	0	0	0
671	200349	100432	37892		1	1	1	0	0	0	1	0	0	1
671	200349	200798	42907		0	0	0	0	0	0	0	0	0	0

G71	200349	301644	47112		0	0	0	0	0	0	0	0	0	0
G71	200352	100435	36875	36000	1	1	1	0	0	0	1	0	0	1
G71	200360	100445	52893	46000	1	1	1	1	1	1	1	0	0	1
G71	200360	200916	58742	55000	1	1	1	1	0	1	1	0	0	0
G71	200363	100449	29345		0	0	0	0	0	0	0	0	0	0
G71	200371	100459	32398		1	1	1	0	1	0	1	0	0	1
G71	200377	100469	28607		0	0	0	0	0	0	0	0	0	0
G71	200377	200852	30000		0	0	0	0	0	0	0	0	0	0
G71	200379	100471	34725		1	1	1	0	0	1	0	0	0	1
G71	200379	200835	50483		0	1	1	0	0	0	0	1	0	0
G71	200387	100492	07453	06000	0	0	0	0	0	0	0	0	0	1
G71	200387	200812	12838		0	0	0	0	0	0	1	0	0	0
G71	200390	100500	41653		1	1	1	0	0	1	1	0	0	1
G71	200390	200922	50335	46000	0	1	1	0	1	0	0	0	0	0
G72	200062	100082	18011	17000	1	1	1	0	1	0	1	1	0	1
G72	200062	200889	25233	23000	0	0	1	0	0	1	1	0	0	0
G72	200064	100084	49191	47000	1	1	1	1	0	0	0	0	0	1
G72	200064	200600	62706	59000	1	1	1	1	1	0	1	0	0	1
G72	200129	100166	21622	18000	1	1	1	0	0	0	1	0	0	1
G72	200129	200914	30090	25000	0	1	1	0	0	0	1	0	0	0
G72	200133	100170	34842	23000	1	1	1	0	1	0	1	0	0	1
G72	200133	200634	43655	39650	0	0	0	0	0	0	1	0	0	0
G72	200133	301651	55256	51000	0	1	1	0	1	1	0	1	0	0
G72	200135	100172	08458		0	0	0	0	0	0	0	0	0	0
G72	200184	100236	17919	10000	0	1	1	0	0	0	0	0	0	1
G72	200184	200675	23074		0	0	0	0	0	0	0	0	0	0
G72	200186	100238	18040	13000	1	1	1	0	1	0	0	0	0	1
G72	200186	200660	27570		0	0	0	0	0	0	0	0	0	0
G72	200192	100244	18592		0	0	0	0	0	0	0	0	0	0
G72	200192	200672	22804	22790	0	1	1	0	0	0	1	0	0	1
G72	200192	301648	26453		0	0	0	0	0	0	0	0	0	0
G72	200212	100269	04533		0	0	0	0	0	0	0	0	0	0
G72	200233	100294	48790	45000	1	1	1	1	1	0	1	1	0	1
G72	200241	100303	40617	38000	1	1	1	0	1	0	1	1	0	1
G72	200242	100304	25685	25000	1	1	1	0	1	1	1	0	0	1
G72	200252	100315	07486		1	0	0	0	0	0	0	0	0	0
G72	200252	301481	23749	17000	0	1	1	0	0	1	0	0	0	1
G72	200267	180335	05586		0	0	0	0	0	0	0	0	0	0
G72	200267	200714	09217		0	0	0	0	0	0	0	0	0	0
G72	200288	100366	11947	10000	1	1	1	0	0	0	0	0	0	1
G72	200288	200886	17756		0	0	0	0	0	0	0	0	0	0
G76	200142	100180	08819	05000	1	1	1	0	1	0	1	0	0	1
G76	200142	200624	12204		0	0	0	0	0	0	0	0	0	0
G76	200142	301618	18791	13000	1	1	1	0	1	0	1	0	0	1
G76	200154	100195	05311		0	0	0	0	0	0	0	0	0	0
G76	200154	200655	11712	05350	0	0	0	0	0	1	1	0	0	0
G76	200154	301682	15859		0	0	0	0	0	0	0	0	0	0
G76	200173	100219	85000		0	0	0	0	0	0	0	0	0	0
G76	200265	100333	13116	10000	1	1	1	0	0	0	0	0	0	1
G76	200289	100363	10425		0	0	0	0	0	0	0	0	0	0
G76	200289	200881	12540		0	0	0	0	0	0	0	0	0	0
G76	200289	301779	15116		0	0	0	0	0	0	0	0	0	0
G76	200301	100380	32655	32000	1	1	1	0	0	1	1	0	0	1
G76	200313	100394	12624		0	0	0	0	0	0	0	0	0	0

G76	200325	100406	19753	16498	1	1	1	0	0	0	0	0	1	
G76	200325	301766	40900	37270	1	1	1	0	0	0	1	0	0	0
G76	200330	100412	59106	43000	1	1	1	0	1	1	0	0	0	1
G76	200330	200905	73048	67000	0	1	1	0	0	1	1	0	0	0	0110
G76	200340	200816	32877		0	0	0	0	0	0	0	0	0	0	
G76	200340	301772	37698		0	0	0	0	0	0	0	0	0	0	
G76	200355	100439	29118	28000	1	1	1	0	1	0	1	0	0	1	
G76	200361	100446	18502	18000	1	1	1	0	0	1	1	0	0	1	
G76	200361	200869	30574												0110
G76	200366	100452	05782		0	0	0	0	0	0	0	0	0	0	
G76	200366	200870	07934	06500	0	0	0	0	0	0	1	0	0	0	
G76	200366	301716	13629	12000	1	1	1	0	0	0	0	0	0	1	
G76	200381	100474	13595		0	0	0	0	0	0	0	0	0	0	
G76	200381	200871	32248	30000	0	1	1	0	1	0	0	0	0	0	0110
G76	200381	301756	75000	45000	1	1	1	0	1	0	1	0	0	0	
G76	200384	100482	15643	13000	1	1	1	0	0	1	0	0	0	0	
V81	200006	100007	17865	15000	1	1	1	0	0	0	0	0	0	1	
V81	200016	100020	04434		0	0	0	0	0	0	0	0	0	0	0000
V81	200017	100021	20786	18000	1	1	1	0	0	0	0	0	0	1	
V81	200021	100025	32709	32000	1	1	1	0	0	0	0	0	0	1	
V81	200031	100041	32252	27000	0	1	1	0	0	0	0	0	0	1	
V81	200031	200614	45715	41400	1	1	1	1	1	1	0	0	1	1	
V81	200031	301707	52296	46000	1	1	1	0	1	0	0	0	1	0	
V81	200046	100059	17049	17000	1	1	1	0	0	0	0	0	0	1	
V81	200046	200585	23173		0	0	0	0	0	0	0	0	0	0	
V81	200047	100061	37072	25000	1	1	1	0	0	0	0	0	0	1	
V81	200047	200611	41987	38000	0	1	1	0	0	0	0	0	0	0	
V81	200048	100063	27505	16000	1	1	1	0	1	0	1	0	0	1	
V81	200049	100064	03000		1	1	1	0	0	0	0	0	0	1	
V81	200049	200582	38880	24000	1	1	1	0	1	1	1	0	0	0	
V81	200049	301671	49928	47500	0	1	1	0	0	0	0	0	0	1	
V81	200066	100522	27441	28000	1	1	1	0	1	0	0	0	0	1	
V81	200067	100087	18625		0	0	0	0	0	0	0	0	0	0	
V81	200067	200592	29010	28890	0	1	1	0	0	0	0	0	0	0	
V81	200089	100497	34562	30000	0	1	1	0	0	0	0	0	0	0	
V81	200089	200598	43970		0	0	0	0	0	0	0	0	0	0	
V81	200089	301866	48534		0	0	0	0	0	0	0	0	0	0	
V81	200137	100174	32577	31000	1	1	1	0	0	0	0	0	0	0	
V81	200137	200667	50677	45000	1	1	1	0	1	0	0	0	1	0	
V81	200161	100202	13560		0	0	0	0	0	0	0	0	0	0	
V81	200177	100224	20627	18000	1	1	1	0	0	0	0	0	0	1	
V81	200188	100240	18974	12000	1	1	1	0	1	0	0	0	1	1	
V81	200188	200732	21414		0	0	0	0	0	0	0	0	0	0	
V81	200421	200856	20683		0	0	0	0	0	0	0	0	0	0	
V82	200034	100042	25146	18219	1	1	1	0	1	0	1	0	0	1	
V82	200118	100155	16255	15000	1	1	1	0	0	0	0	0	0	1	
V82	200118	200865	27511		0	0	0	0	0	0	0	0	0	0	
V82	200151	100190	23736		1	1	1	0	1	0	1	0	0	1	
V82	200151	200687	26557	25000	1	1	1	0	1	1	1	0	1	1	
V82	200152	100191	50013		0	0	0	0	0	0	0	0	0	0	0000
V82	200152	200683	61336	54000	0	1	1	0	0	0	0	0	0	0	
V82	200229	100289	18047	06000	1	1	1	0	1	0	1	0	0	1	
V82	200229	200716	26631		0	0	0	0	0	0	0	0	0	0	
V82	200229	301783	34835	34500	0	1	1	0	0	0	0	0	0	0	

V82	200240	100302	24797	18000	1	1	1	0	0	0	0	0	0	1
V82	200240	200854	27576	26000	0	1	1	0	0	0	1	0	0	0
V82	200250	100312	17481	15000	0	1	1	0	1	0	1	1	0	1
V82	200261	100327	15635	15000	1	1	1	0	1	0	1	1	0	1
V82	200261	200747	17641		0	0	0	0	0	0	0	0	0	0
V82	200261	301761	20380		0	0	0	0	0	0	0	0	0	0
V82	200296	100372	33992	32000	0	1	1	0	0	0	0	0	0	1
V82	200299	100378	06686	05700	0	1	1	0	1	0	0	0	0	1
V82	200299	200769	11318	09000	0	1	1	0	0	0	1	0	0	1
V82	200299	301755	14910	12000	1	1	1	0	0	0	0	0	0	0
V82	200300	100379	18500	12000	0	0	0	0	0	0	0	0	0	0
V82	200304	100383	16274	14000	0	1	1	0	1	0	1	0	0	1
V82	200376	100465	10848	06000	1	1	1	0	0	0	0	0	0	1
V82	200397	100511	29940	26000	1	1	1	0	0	0	0	0	0	1